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Dynamics of the Food Stamp Program as Reported in the Survey of Income and Program Participation

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Dynamics of the Food Stamp Program as Reported in the Survey of Income and Program Participation

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EXECUTIVE SUMMARY

Food stamp administrators have an ongoing need for information about what kinds of people participate in the Food Stamp Program, what conditions motivate them to apply for benefits, how long they will participate, and what circumstances allow them to become independent of assistance. Such knowledge is important not only in establishing budgets and staffing levels, but also in designing policies to help food stamp recipients achieve self-sufficiency.

The analysis reported here is intended to contribute to the growing body of research on the dynamics of food stamp participation. The data source is the Survey of Income and Program Participation (SIPP), a national longitudinal survey. The SIPP collects monthly data on a sample of households over a period of nearly three years, through interviews conducted at four-month intervals. The present research uses the 1984 SIPP panel, which covers a period from late 1983 to early 1986. The analysis uses respondents' reports of whether they received food stamps during each four-month interview interval, together with selected demographic characteristics of individuals and their households.

Highlights

- **People that enter the Program tend to receive food stamps for relatively brief periods.** Of all recipients that enter the Food Stamp Program, half leave the program in six months or less and two-thirds within one year. Averaging in some people who stay for very long spells, the mean length of time that people receive food stamps is somewhat less than two years.
- **Many people stop receiving food stamps for a period and then return to the program.** Somewhat more than one-third of all recipients who stopped receiving food stamps began receiving them again within one year.
- **Earned income is a dominant factor in participation patterns.** Most new food stamp households had some earnings shortly before entering the program. A decline in a household member's earnings is the most common event associated with beginning a food stamp spell, and an

increase in earnings most often accompanies the end of the spell. Households that have earnings when they begin receiving food stamps are able to leave the program more quickly. Households that have earnings when they leave the program are less likely to return.

- **The food stamp recipient population is made up of groups with quite distinct participation patterns.**
 - **Most new food stamp recipients are in households that contain at least two adults and at least one child. Participation patterns for the food stamp population as a whole (cited above) largely reflect this group's experiences, because it includes 71 percent of all new recipients.**
 - **One-adult households with children show the most persistent dependency patterns. This group, accounting for 14 percent of new recipients, has the longest food stamp spells and the highest recidivism rate.**
 - **Able-bodied, childless adults have the shortest spells of food stamp participation and among the lowest recidivism rates. This group is especially likely to begin participating after a drop in earnings and to stop after an earnings gain. Fewer than one in ten new recipients are in this group.**
 - **The aged and disabled have relatively long food stamp spells, but once they leave the program they are least likely to return. This group accounts for just seven percent of new food stamp recipients.**
- **Among people not receiving food stamps, children and high school dropouts are especially likely to participate. Children are more than twice as likely to start receiving food stamps as able-bodied childless adults, and four times as likely as elderly and disabled childless adults. Members of households with no high school graduates are nearly three times as likely to begin receiving food stamps as people with at least one high school graduate (or equivalency degree) in the household.**

Trigger Events for Food Stamp Spells

Why do people enter the Food Stamp Program? One way to address this question is to examine changes in household circumstances that occur just before people begin receiving food stamps. This approach is not definitive, however. For example, a household may gain a new infant and shortly afterward begin receiving food stamps, but one cannot be certain that the new arrival, rather than some other factor, caused the family to apply for assistance. Nonetheless, this approach has proven useful in studying the onset of dependency on food stamps and Aid to Families with Dependent Children (AFDC).

Three kinds of events are hypothesized as "triggers" for a spell of food stamp participation:

- **Loss of household income.** A household is considered to have lost income if its total income for a four-month SIPP reporting period has declined at least \$400 from the prior period. A loss may result from a decline in earnings or unearned income for one or more household members, or from the departure of a household member with income.
- **Increase in needs.** A household is considered to have increased needs if it gains a member who has no income. The new member may be an infant, normally representing a new birth, or may be any other person added to the household.
- **New receipt of cash assistance.** A household might apply for food stamps not because its circumstances changed, but because it obtained new information about the program or about the household's possible eligibility. Because a new AFDC or General Assistance recipient might be given such information, the beginning of such an assistance spell without any reported loss of income or increase in needs is a potential trigger event.

Overall, 82 percent of all individuals who began a food stamp spell experienced one or more of the three kinds of trigger events. The frequency of the events is summarized in Exhibit 1.

A sharp decline in earnings was by far the most common event. This occurred for 53 percent of all persons beginning a food stamp spell. Another 18 percent lost income in some

Exhibit 1

Incidence of Trigger Events for New Food Stamp Recipients

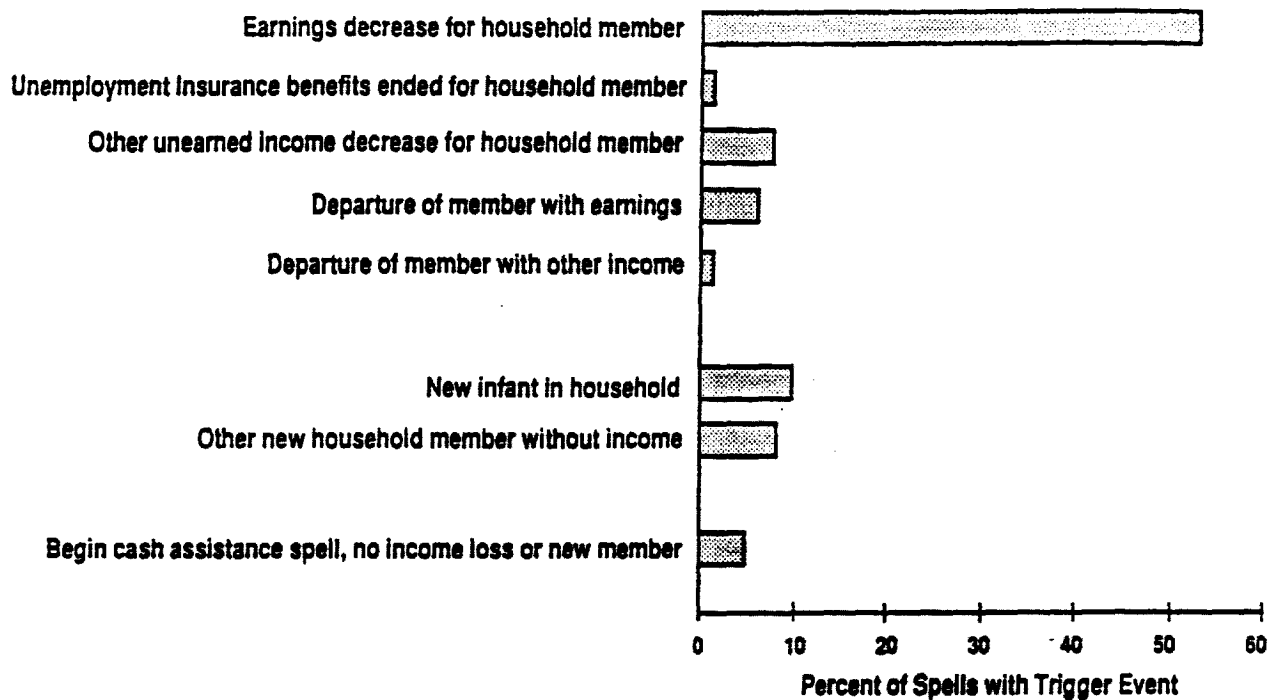


Exhibit 2

Median Food Stamp Spell Length for Subgroups



other way, most commonly through a reduction in unearned income or the departure of a household member with earnings.

Fewer new food stamp recipients had experienced a recent increase in needs. Ten percent had a new infant, and 8 percent had seen some other person without income added to the household. Five percent of the new food stamp recipients did not have an observed loss in income or increase in needs, but had recently begun receiving cash assistance.

This general characterization applies well to households with two or more adults and at least one child. Other subgroups show some interesting differences in trigger events, however.

- Most new food stamp recipients (79 percent) were in households with some earnings in the period before entering the program. Among these people, nearly two-thirds experienced a decline in earnings just before getting food stamps.
- A recent decline in unearned income was relatively common among new recipients in households with no earnings during the pre-food stamp period, with 23 percent experiencing this event. About 9 percent of the new recipients had just begun receiving cash assistance. Overall, however, trigger events were found for only 54 percent of those without earnings in the pre-food stamp period.
- Among households made up entirely of aged or disabled adults, only 50 percent experienced any of the trigger events. Many of these households are presumably responding to factors that are either not measured in SIPP or occurred before the 8-month time frame considered here.
- Single-adult families with children were the group most likely to have a new infant in the household, with this event occurring for 17 percent of the recipients. Even in this group, however, a decline in earnings occurred for more than half of the new recipients.

Trigger events do not automatically lead to food stamp participation. Among the population examined here (individuals with incomes below 300 percent of the poverty line), just three percent of those who experienced a trigger event began receiving food stamps shortly thereafter. Some groups seem particularly vulnerable, however. Members of households with

no high school graduates, one-adult households with children, and households with no earnings were more likely to begin receiving food stamps after a trigger event. These groups may be living closer to the financial margin and be less able to cope with the strain imposed by the trigger event.

Duration of Food Stamp Spells

Once individuals begin receiving food stamps, how long do they participate? We address this question by examining the number of consecutive months¹ of food stamp receipt reported in the SIPP.

The median food stamp spell in the SIPP data is six months long -- that is, half of all new recipients stop receiving food stamps in six months or less. Two-thirds of the spells end within one year, while one-fifth last more than two years. A mean spell length cannot be calculated directly from the SIPP data because the time frame is too short to observe the longest spells in their entirety. Based on the available data, however, the mean spell length is estimated at 22 months.

Different subgroups participate for dramatically different lengths of time, as illustrated in Exhibit 2. Among the striking patterns:

- **Individuals in households that have some earnings when they begin receiving food stamps have comparatively short spells.** Their median spell is just five months, and their mean spell is estimated at 14 months.
- **Households with no earnings at the time they enter the program receive food stamps for more than twice as long as those with earnings.** Their median is about 10 months, and the mean stay on the program is 30 months.
- **One-adult families with children stay on food stamps the longest.** The median spell for these new recipients is 11 months, while the mean is 38 months.

¹ Certain analytic adjustments are made to the data as reported in the SIPP. In particular, one-month gaps in the reported food stamp receipt are assumed to be reporting error, and it is assumed that the household participated in the missing month.

- **Able-bodied, childless adults have the shortest spells.** Nearly half leave the program within four months. The median is 5 months and the mean stay is under 14 months.

These patterns, which reflect the diversity of the food stamp population, have important implications for initiatives aimed at helping recipients attain self-sufficiency, such as employment and training programs. For example, most recipients who begin with earnings will leave in a very few months; a cost-effective program for these people would have to operate quickly and be relatively inexpensive. In contrast, a program aimed at single-adult families with children could operate over a longer period at a higher cost and still potentially be cost-effective.

Trigger Events for Food Stamp Closures

Why do people leave the Food Stamp Program? To address this question, we again consider trigger events--that is, changes in peoples' household circumstances that occur just before they stop receiving food stamps. The prevalence of these trigger events is summarized in Exhibit 3.

- **Increased earnings of household members is the single most common trigger event.** An earned income increase of \$400 or more between two four-month periods was reported for 57 percent of the recipients whose cases closed.
- **In comparison, other trigger events were rarely associated with food stamp closures.** The departure of a household member without income, which reduces the family's need, occurred for about 12 percent of the individuals leaving food stamps. Increases in unearned income occurred for 11 percent. Only occasionally does a closure occur after a new person with income enters the household (5 percent). Death, institutionalization, emigration, or entry into the armed services (events which remove the individual from the sample as well as from the Food Stamp Program) accounted for about 4 percent of program exits.

These patterns generally characterize the experiences of multiple-adult households with children and of able-bodied childless adults. Other subgroups show different patterns, however:

Exhibit 3

Incidence of Trigger Events for Individuals Ending Food Stamp Spell

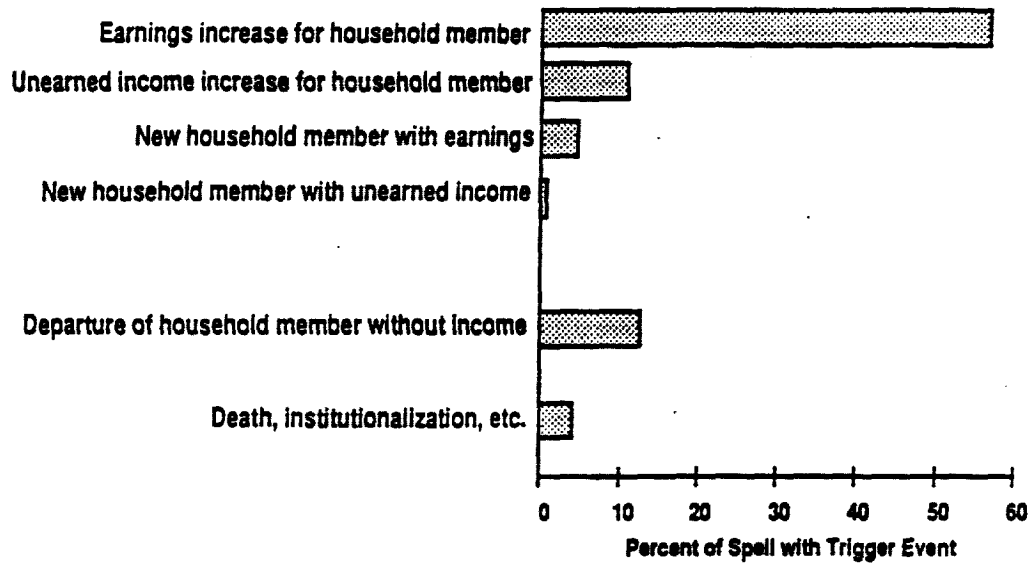
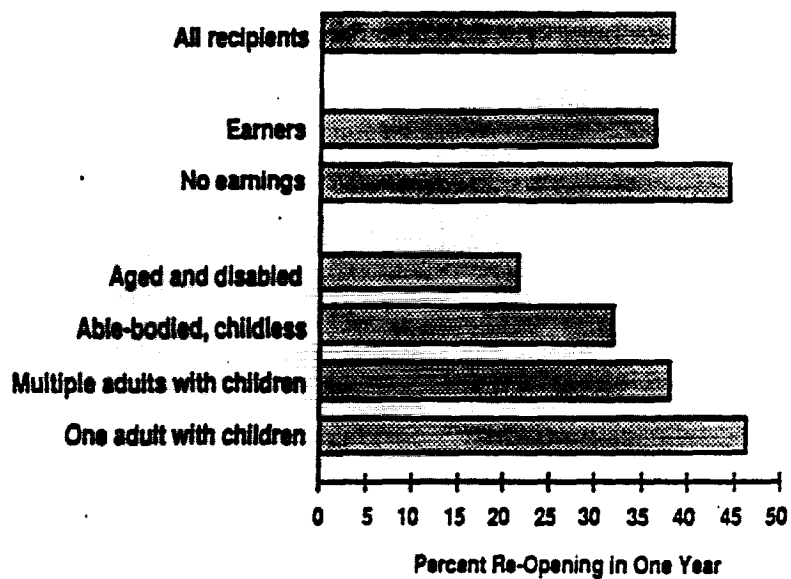


Exhibit 4

Recidivism to Food Stamps Within One Year



likely to reopen than those without earnings, but the difference is not so dramatic as some other earnings/non-earnings comparisons.

Overview

From the preceding findings we can draw a picture of the most common type of new food stamp recipient. This recipient is part of a household that includes at least two adults as well as one or more children. The household had earnings before applying for food stamps, and applied for food stamps after those earnings declined sharply. The individual receives food stamps for six months, at which time an increase in household earnings occurs and the household leaves the program. The individual does not receive food stamps again for at least a year.

The food stamp recipient population is not monolithic, however, and three other important recipient types can be identified. One-adult households with children show the strongest pattern of prolonged and repeated dependency. Childless adult households tend to leave the program quickly and not return. Aged and disabled recipients, with long spells and low recidivism, are the only group for which movement on and off the program has little to do with fluctuations in earned income. These distinctive subgroups establish a complex environment for the formulation of food stamp policy.

CHAPTER ONE

INTRODUCTION

The past decade has seen the emergence of a growing body of research on the dynamics of participation in assistance programs in general, and in the Food Stamp Program in particular. An important theme of this research is that food stamp recipients form a heterogenous population with widely varying patterns of participation. An understanding of these patterns is essential for developing policies that will enable recipients to achieve economic self-sufficiency.

Four research questions of particular interest in this regard are:

- What circumstances lead people to enter the Food Stamp Program?
- How long do households and individuals tend to receive food stamps?
- What circumstances lead people to leave the program?
- How do participation patterns vary by specific demographic characteristics (e.g., age, education, household composition, attachment to the labor force)?

These questions have important policy implications. If many recipients of a particular type normally exit the program after only a few months of food stamps, then it is probably not efficient to enroll them in employment and training programs. Conversely, it is valuable to know what types of recipients stay on the rolls for a year or more, and whether their eventual exits are associated with events that could be influenced by program policy.

These same questions were addressed in a report by Burstein and Visser (1989). That report used two nationally representative data sources: an administrative data base which covered a sample of food stamp cases receiving benefits between October 1980 and December 1983; and an extract from the Panel Study of Income Dynamics (PSID), consisting of annual data on a sample of households from 1973 to 1983. These two data bases had complementary advantages and shortcomings. The administrative data measured participation on a monthly basis, which is the appropriate time unit for analyzing the dynamics of a program that pays monthly benefits. Furthermore, these data were free from recall error (although like most data,

they were subject to transcription error). On the other hand, the administrative data pertain only to households receiving food stamps. Hence the circumstances of households in the months immediately prior to entry or subsequent to exit could not be observed.

The PSID, in contrast, collects data on recipients and nonrecipients alike. Its primary disadvantages are that information is available only on an annual basis;¹ and that reported receipt of food stamps is likely to understate actual receipt.

Analyses presented in this report use data from the 1984 panel of the Survey of Income and Program Participation (SIPP). The SIPP has features in common with both of the data bases mentioned above.² Each panel collects monthly data on a sample of households over a period of nearly three years, in this case running from the latter part of 1983 to the early part of 1986, interviewing all members aged 15 and older every four months. Thus, these data support both subannual analysis of food stamp receipt and investigations of circumstances surrounding Food Stamp Program exits and entrances. The disadvantages of the SIPP--which are inherent in this type of data--are that the time period covered is too short to observe households' participation for more than two or three years; that the number of food stamp recipients in the sample is limited to a few thousand; and that the data are subject to some degree of recall error and systematic underreporting. Despite these negative characteristics the SIPP data are of great value in adding to our understanding of the dynamics of participation in the Food Stamp Program.

In the chapters that follow, we present answers to each of the above research questions based on households' responses to this survey. As shown in Exhibit I.1, the population examined varies in a fundamental way among the analyses. For studying circumstances leading people to enter the Food Stamp Program, the sample consists of poor and near-poor

¹Recent waves of PSID data have collected more detailed monthly information. No attempt was made to use these monthly data because they were only available for the last year or two of the extract, and because recall error was expected to be a major problem for monthly data collected from annual retrospectives.

²A detailed description of the SIPP data and the extracts used in this report may be found in Appendix A.

Exhibit I.1

ANALYSIS SAMPLES

Research Question	Conceptual Sample
What circumstances lead people to enter the Food Stamp Program?	Poor and near-poor non-recipients
How long do households and individuals tend to receive food stamps?	Households and individuals beginning food stamp spells
What circumstances lead people to leave the program?	Current recipients

nonrecipients. For determining the length of time households and individuals tend to receive food stamps, the sample consists of new entrants during the observation period. Those who were already receiving food stamps at the time the survey began are excluded (unless they left and reentered the program). This part of the analysis thus addresses the question, "Of the next 100 persons who walk into a food stamp office, how many will be on the Program for one month, two months, three months, and so on?" Finally, the analysis of circumstances leading people to leave the Food Stamp Program focuses on ongoing food stamp recipients, including those who were receiving benefits at the time the survey began.

CHAPTER TWO

CIRCUMSTANCES SURROUNDING FOOD STAMP SPELL BEGINNINGS

This chapter addresses the question of what circumstances are associated with people starting to receive food stamps. While loss or decrease of earnings is by far the most common occurrence, there turn out to be marked variations in patterns from one subgroup of individuals to another, depending on labor force status, education, and household composition.

Analysis of Trigger Events

In their seminal work on the dynamics of AFDC receipt, Bane and Ellwood (1983) used the PSID to explore the circumstances that lead families to enter the AFDC program. Their approach was to examine all households that began a spell of AFDC receipt, and determine how many had recently experienced a marital dissolution, loss of earnings, and other "trigger events"; that is, changes in household circumstances that could be expected to lead to a spell beginning. They thus calculated the probability that households beginning a spell of AFDC experienced a trigger event.

This dynamic approach, which links changes in household circumstances with changes in reciprocity status, was a step forward from earlier work which simply related current receipt to current household circumstances. The underlying presumption is that a household that experiences a major change (e.g., a divorce) will either maintain its independence by some adaptation, or else require welfare almost at once.

While these conditional probabilities provide useful information, their interpretation is enhanced if they can be compared with the corresponding conditional probabilities for eligible households that did not enter the Food Stamp Program. When we compare the percentage of individuals experiencing a trigger event among those who enter the Food Stamp Program to the percentage of people experiencing the same event among those who did not begin receiving food stamps, we learn to what extent the trigger event is associated with an entry.

Another way to gauge the importance of the hypothesized trigger event is to calculate the probability of beginning to receive food stamps conditional on the event occurring. Suppose, for example, that about 2 percent of all individuals not receiving food stamps in one period begin a spell of food stamps in the next period. If the proportion of individuals beginning a spell is much higher than 2 percent for people who have experienced a particular event, then we can identify the event as a trigger.

It is tempting to interpret trigger events as causes of food stamp beginnings. In general, this interpretation is not justified. By a cause, we mean a factor which, if it alone were altered, would change the outcome. But the events precipitating a successful food stamp application are likely to be a series rather than a single occurrence. For example, a household head may suffer a work-related injury that causes him or her to lose his job; collect unemployment insurance for some months; and then apply for food stamps. It is probably a meaningless question whether the spell of food stamp receipt was "caused" by the injury, the job loss, or the exhaustion of unemployment benefits. For this reason, it is appropriate to interpret the association of trigger events with food stamp spell beginnings as descriptive rather than causal.

Definition of Trigger Events and the Population at Risk

The events that will lead to a food stamp spell beginning are of three general types. First, an individual may have suffered a loss of household income. The lost income may be of various types, e.g. wages, unemployment insurance benefits, or other unearned income. An individual may lose income through a decline in his or her own personal income, through departure from the household of the person who had the income, or through a decrease in income to other people who are still in the household. A household is defined simply as a group of people living at one address at a given point in time. For convenience, we say that an earner has departed from an individual's household whenever it is true that they no longer live together; but in fact, it may be the individual who has moved out while the earner stayed behind. Death of a household member with income is included as one form of a departure.

The second type of event that could lead to a food stamp spell beginning is an increase in needs. The instances that we analyze here are the birth of a baby (or to be precise, the

addition of an infant to the household) and the addition of other people to the household who do not have any income of their own. One can imagine other increases in needs that could lead to food stamp spell beginnings--such as rent increases, price increases, and medical emergencies--but the SIPP data are not suited for measuring these.

Yet a third type of trigger event is a gain of information. Individuals may be circumstantially eligible for food stamps for months or years before applying. Some begin to receive some form of cash assistance such as AFDC or SSI, and then begin to receive food stamps at about the same time. It is a plausible inference that these people have received information or encouragement about applying for food stamps from the administrators of the cash assistance programs. But again, individuals may gain information about the Food Stamp Program in ways that are not captured by the SIPP--e.g., through networks of family and friends, or through outreach programs by the agency or by local advocacy groups.

There are dangers in identifying potential trigger events either too broadly or too narrowly. A broad definition (e.g., an income loss of any size occurring any time within the past three years) will be associated with a large number of spell beginnings. Yet the probability of an opening for individuals experiencing this event may be no higher than the unconditional probability of opening for all individuals. Such a definition would therefore not be useful.

Conversely, a very narrow definition (e.g., a major income loss within the past few months) may be associated with a relatively high conditional probability of opening, in that a relatively large proportion of people who experienced the event began to receive food stamps. Yet the event may be so rare that it is associated with only a small percentage of all food stamp spell beginnings. The operational definitions of trigger events must avoid both extremes.

A key decision in this regard was to focus on the four-month data collection period used in the SIPP, known as a wave, rather than on the individual month, as the unit of analysis. This decision was influenced by two factors. First, we have more confidence in the food stamp reciprocity data for four-month reference periods than for individual months.¹ Second, it seems

¹The reliability of the SIPP data is discussed in Appendix A.

plausible that the lags between changes in household circumstances and food stamp reciprocity would be on the order of several months, rather than a single month.

As a consequence, a food stamp opening is defined here as receipt of food stamps in a four-month reporting period, or wave, when no food stamps were received in the preceding wave. A person in the sample may contribute as many as five observations to this analysis, corresponding to the possibilities of a food stamp opening in Waves 4, 5, 6, 7, and 8.¹ A trigger event may have occurred either in the wave of opening or in the preceding wave. Suppose, for example, that a person who loses a job in Wave 5 begins food stamp receipt in Wave 6. Depending on whether the job was lost near the beginning or near the end of Wave 5, the major decrease in earned income may occur between Waves 4 and 5, or alternatively between Waves 5 and 6. Hence, a decrease in earnings in either of these time frames is considered to be a possible trigger for a food stamp opening in Wave 6. The minimum loss of income between waves that is deemed to be a potential trigger event is \$400, corresponding to a change in income of \$100 per month. The relationship between income losses of various sizes and the probability of beginning a food stamp spell is discussed in detail in Appendix B.

Some individuals are so unlikely to have a food stamp opening that there is little or no gain from including them in the analysis. Individuals that are already receiving food stamps in a given wave clearly cannot begin to receive food stamps in the following wave. These person-waves are therefore excluded from the analysis. In addition, it may reasonably be supposed that individuals with relatively high household incomes have a sufficient financial cushion that even a job loss or other major event is not likely to lead to a quick food stamp opening. Retaining them in the sample would attenuate measured relationships for those households with a significant probability of beginning a food stamp spell. We have therefore eliminated higher-income households from the sample as follows. Baseline income is measured in the second prior

¹Openings in Wave 3 and earlier cannot be analyzed because to do so would require comparing household data from Wave 1. An idiosyncrasy of the SIPP is that data collection for all four months in Wave 1 was based on household composition in Month 5 (the first month of Wave 2), rather than on household composition in each month of Wave 1. The data are therefore not comparable with those from other waves.

wave before the wave in which an opening could occur. (For example, for an opening in Wave 6, baseline income is measured in Wave 4.) If the baseline household income exceeds three times the estimated poverty threshold, then we conclude that a food stamp opening two waves later has a negligible probability of occurring.¹ The corresponding person-wave is then dropped from the sample.

We find that in a given four-month period, nearly half of all persons who did not receive food stamps live in households that have income over three times the poverty threshold. Less than two in a thousand of these individuals begin to receive food stamps two waves later, and they account for less than eight percent of food stamp openings. The next lowest group on the income scale, those with income between two and three times the poverty line, contribute 13 percent of food stamp openings while comprising less than a quarter of the nonrecipient population. We retain them in the analysis sample.

The presence of significant assets could also render it virtually impossible for a household to enter the Food Stamp Program in the near future. The available data on assets are too limited to use for constructing a cutoff for identifying ineligible households, however.

Population Subgroups

In addition to determining patterns of food stamp participation for the population at large, it is of interest to see how these patterns vary among subgroups of the population. Some dimensions on which important variations may occur are:

- presence or absence of earnings;

¹The official poverty threshold measure is based on the family, rather than the household; varies outside the continental United States and according to the presence of elderly individuals; and is recalculated for each calendar year. For current purposes, we have simply assigned to each household month in the sample the average national value of the poverty threshold for families that are the size of that household. (The time dimension was accommodated by using the average of the published values of thresholds for 1984 and 1985.) By this rule, the annual poverty thresholds assigned to households of size 1, 2, 3, 4, and 5, for example, were \$5374, \$6880, \$8425, \$10,799, and \$12,787, respectively. The monthly thresholds were these values divided by 12.

- education level of household members who are not disabled or elderly;
- age and disability status; and
- presence or absence of multiple adults in households which contain children.

Exhibit II.1 displays the subgroups used in the analyses in this report.

The population has been partitioned in three independent ways.¹ For each partition, the operational definitions are shown both for individuals (the level of analysis used throughout the report) and for households (a level of analysis used in Chapter Three only). Even at the individual level, however, subgroup definitions are generally based on characteristics of the household of which the individual is a member. This is done because we assume that welfare dynamics for individuals are driven by household circumstances.

The first partition pertains to the presence or absence of earnings. Households are classified according to whether or not they contain an earner. Individuals are classified according to whether their household contains an earner. The time dimension in which the presence of earnings is measured--e.g. current wave, preceding wave, current month--varies by research question, and is noted each time subgroup results are presented.

The second partition pertains to the education of the members of the household who are potentially in the labor force--that is, adults under the age of 60 who are not disabled. A household that contains at least one such adult who has a high school diploma falls in the category of high school graduates. If there are able-bodied, non-elderly adults present, but none with a high school diploma, then the household falls in the category of high school dropouts. The remaining households, in which there are no able-bodied adults under age 60, are excluded from this partition. Individuals are again classified according to the household to which they belong. Thus, a child in a household which includes a high school graduate is put in the graduate subgroup, because the welfare dynamics for the child is determined in part by the education of adult household members.

¹Sample size did not permit that these partitions be interacted.

Exhibit II.1

DEFINITIONS OF RECIPIENT SUBGROUPS

<u>Subgroup</u>	<u>Households</u>	<u>Individuals</u>
Earners	Households with earnings	Members of such households
Nonearners	Households without earnings	Members of such households
<hr/>		
High-school graduates	Households containing at least one non-elderly, able-bodied adult with a high school diploma	Members of such households
High-school dropouts	Households containing at least one non-elderly, able-bodied adult, but none with a high school diploma	Members of such households
<hr/>		
Able-bodied childless adults	Households containing no children, elderly, or disabled	Members of such households
Elderly and disabled childless adults	Households containing at least one elderly or disabled individual, not more than one able-bodied, non-elderly adult, and no children	Elderly and disabled members of such households
Children living with one adult	Households consisting of one adult and one or more children	Children living in such households
Single adult living with children		Adults living in such households
Children living with more than one adult	Households consisting of multiple adults and one or more children	Children living in such households
Adults living with other adults and children		Adults living in such households

The final partition pertains to the demographic composition of the household. Four household types and six individual types have been defined. The first type of household consists entirely of able-bodied, non-elderly, childless adults. The individuals in this subgroup are the members of such households. The second type of household also contains no children, but contains at least one elderly or disabled person. One able-bodied non-elderly adult may also be present in such a household, e.g., the spouse of an elderly or disabled person. The individuals in this subgroup are members of such households.

Exhibit II.2

OVERALL PROBABILITY OF ENTERING THE FOOD STAMP PROGRAM BETWEEN TWO CONSECUTIVE FOUR-MONTH PERIODS

	Percent of population	Percent opening in next four months	Percent of openings
Earners	80.0	2.0	79.2
Nonearners	20.0	2.1	20.8
High school graduates	71.3	1.9	65.7
High school drop-outs	11.6	5.2	29.3
Able-bodied, childless	13.5	1.2	8.1
Elderly/disabled, childless	20.9	0.7	7.3
One adult living with children	2.4	3.6	4.3
Multiple adults living with children	32.9	2.2	36.0
Children living with one adult	3.6	5.5	9.8
Children living with multiple adults	26.7	2.6	34.5
ALL INDIVIDUALS	100.0	2.0	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 75,161 observations.

- Notes:
1. This table includes only individuals whose household income is less than three times the poverty threshold income in the baseline wave (i.e., two waves before the food stamp opening).
 2. The percentages shown pertain to Waves 3 through 8 combined.
 3. For definitions of population subgroups, see Exhibit II.1. High school graduate and dropout subgroups do not sum to 100 percent of the population because individuals in households containing only elderly or disabled adults are excluded.

The first column of the exhibit shows the distribution of the population among the subgroups at the baseline wave. It is notable that only a few (6.0 percent) of these individuals live in households consisting of a single adult with children. This is a consequence of the definition of the population at risk, namely, individuals in households with income under three times the poverty line who are not currently receiving food stamps. Lower-income single-adult households with children that are not already receiving food stamps are relatively rare.¹

For the entire population, the probability of an opening is 2 percent. This varies little by whether or not households had earnings in the baseline wave. Marked variations are seen with regard to the other dimensions, however. Excluding those households in which the only adults are elderly or disabled, individuals in households which contain a high school graduate are about as likely to commence food stamp receipt as the general population; but those in households that contain only high school dropouts are two and one half times as likely to do so.

The demographic subgroups also show substantial variation. The presence of children in a household substantially increases the probability of a food stamp spell beginning: single adults living with children are three times as likely to begin a spell as able-bodied childless adults (3.6 versus 1.2 percent), and seven times as likely as elderly and disabled childless adults. Furthermore, children living with one adult are twice as likely to start receiving food stamps as children living with multiple adults (5.5 versus 2.6 percent).

The final column shows the percent of all food stamp openings coming from each subgroup. Thus, for example, members of high school dropout households comprise only 11.6 percent of the population at risk, but because of their high entry rates account for 29.3 percent of food stamp openings.

¹Doyle (1990) calculated a 74.8 percent participation rate (August 1985) among eligible households consisting of a single female adult with children. The numerator was based on the Food Stamp Program Statistical Summary of Operations and the denominator on the 1984 and 1985 panels of the SIPP. The participation rate for this household type was substantially higher than the rate for eligible households in general (59.4 percent).

Occurrence of Trigger Events: All Recipients

Exhibit II.3 shows the occurrence of trigger events to all individuals at risk of an opening, and the effects of the events on the chances of a food stamp opening occurring. As can be seen from the final line of the exhibit, over half of the nonrecipient population experienced a trigger event of one sort or another, and these individuals then had an opening rate of 3 percent, compared with only 2 percent for the general nonrecipient population at risk. Looking at it from the opposite perspective, 80 percent of those who began to receive food stamps experienced one or more of the trigger events.

The first type of trigger event considered is losses of household income. These were subdivided into six types:

- loss or decrease of earnings to a household member;
- loss or decrease of unemployment insurance benefits to a household member;
- loss or decrease of other unearned income to a household member;
- departure of a household member who had earnings;
- departure of a household member who had other income; and
- miscellaneous.

For individuals who experienced a drop in household income of at least \$400 in either the wave in which the opening could have occurred or the preceding wave, it was first determined in which wave the greatest income loss occurred, and then which component of income within that wave showed the greatest loss. If no single component accounted for \$400, the income loss was classed as miscellaneous. Thus, the income loss types are mutually exclusive and collectively exhaustive.

By far the most common trigger event is a decrease in earnings to household members. This event occurred to 38 percent of individuals at risk of a food stamp opening, and accounts for 53 percent of all food stamp spell beginnings. Yet it is only a moderately good predictor of a food stamp spell beginning: the probability of an opening among individuals who

Exhibit II.3

OCCURRENCE OF TRIGGER EVENTS FOR OPENINGS: ALL INDIVIDUALS

Event	Percent of all individuals with event	<u>Conditional probability of:</u>	
		opening event	event opening
Household income decreased significantly, primarily because of:			
Decrease of earnings to household member	38.0	2.8	53.1
Loss of unemployment insurance benefits to household member	0.8	4.4	1.7
Decrease of other unearned income to household member	7.9	2.0	8.0
Departure of member with earnings	3.0	4.3	6.4
Departure of member with other income	0.6	4.9	1.5
Miscellaneous	0.5	2.7	0.6
New household member without income			
Infant	3.7	5.5	10.1
Other	3.0	5.7	8.3
Startup of cash assistance, with none of the above events	2.1	5.0	5.1
ALL EVENTS	55.3	3.0	81.8

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 75,161 observations.

- Notes: 1. This table includes only individuals whose household income is less than three times the poverty threshold income in the baseline wave (i.e., two waves before the food stamp opening).
2. The overall probability of an opening for all individuals is 2.0 percent.
3. Probability of opening|event: proportion of individuals experiencing the event who enter the Food Stamp Program within one or two waves. Probability of event|opening: proportion of individuals entering the Food Stamp Program who experienced the event one or two waves previously.

experienced this event, 2.8 percent, is not dramatically greater than the probability of 2.0 percent for the population as a whole.¹

ning
In contrast, loss of unemployment insurance benefits is a rare event, affecting less than 1 percent of these individuals. Yet for those who experience it, the probability of an opening is over 4 percent. It seems plausible that some households follow a path from a job loss to receipt of unemployment benefits, and then to entrance into the Food Stamp Program when these benefits expire.²

Approximately 8 percent of individuals experience a significant drop in other income, but only 2 percent of these individuals then enter the Food Stamp Program. This is no higher than the percentage of the entire population that does so.

Two other rare income-related events have relatively high probabilities of triggering a food stamp spell: the departure of a household member who had been contributing earnings, and the departure of a household member who had been contributing other income (including, extremely rarely, unemployment benefits). These events occur to only 3 percent and 1 percent of individuals, respectively; yet the individuals who experience these events have a 4 to 5 percent chance of beginning to receive food stamps.

An increase in household needs also may trigger a food stamp spell beginning. Four percent of individuals experience the addition of an infant to their household in a given four-month period, and 3 percent the addition of another person without income. Of those experiencing one or both of these events, approximately 6 percent then enter the Food Stamp Program. These two events have not been defined to be mutually exclusive with each other or

¹It should be noted, however, that these statistics are a function of the cutoff that was chosen to identify a significant loss of income. Choice of a higher cutoff--e.g., a decrease of \$800--would lead to this event occurring less frequently and accounting for fewer spell beginnings, but predicting openings among individuals who experienced the event with more power.

²It is not possible to determine from the SIPP data whether the loss of unemployment insurance benefits is due to exhaustion of the benefit or some other cause. The event measured here is simply a decrease in reported income from that source.

with income losses. Consequently, some individuals may have experienced both of these events, and some may have experienced decreases in household income at the same time.

Finally, some individuals who experienced none of the above events began receiving government transfer payments--Aid to Families with Dependent Children (AFDC) or other public assistance, Supplemental Security Income (SSI), Social Security, or Unemployment Insurance. As suggested above, the administrators of these programs may recommend that the household apply for food stamps as well. It can be seen that this potential trigger event occurred to 2 percent of individuals, 5 percent of whom then began to receive food stamps.

The final line of the exhibit shows the combined effects of all trigger events. As noted above, fifty-five percent of individuals experienced at least one of these events, and they collectively had a 3 percent probability of commencing food stamp receipt. In all, 82 percent of individuals who began to receive food stamps experienced one or more of these events.¹

¹Burstein and Visser (1989) obtained rather different results from their analysis of the Panel Study of Income Dynamics (PSID). They found that departures of adults were associated with nearly 40 percent of food stamp openings, while income losses were associated with only 31 percent of openings. The primary reason for the difference in findings is that Burstein and Visser's hierarchical definition of trigger events was based on David Ellwood's research on the AFDC program. Hence all changes which consisted of the departure of a household head or spouse who had earnings or other income were classified as household composition changes. The current analysis focuses on Food Stamp Program requirements, which do not depend on the structure of the household. Departure of a household head or spouse with earnings is therefore considered an income change. In contrast to the earlier study, if no associated income loss occurs, departure of an adult from a household is not considered to be a trigger event at all. An additional source of noncomparability is that the proportion of openings that are associated with income losses is to some extent arbitrary, as it depends on the size of the income loss that is chosen for a cutoff. The two studies used different cutoffs. Finally, the earlier analysis had the advantage of a much longer time series to examine--11 years versus two and one-half--but the disadvantage of only annual interviews. Hence both trigger events and receipt of food stamps were defined more broadly in the time dimensions. For these reasons, the proportions of food stamp openings that are associated with changes of various types cannot be compared between the two reports.

Occurrence of Trigger Events: Earners vs. Nonearners

We turn now to an examination of trigger events for the population subgroups defined earlier. Exhibits II.4 and II.5 indicate some significant differences in the patterns of trigger events between earners and nonearners.

For individuals in households that had earnings two waves prior to the food stamp opening, nearly three quarters of openings can be associated with a loss of earnings or departure of an earner. In contrast, loss of an earner or an ongoing household member's earnings is naturally a rare event for individuals in households initially without earners; it can occur only if the household achieves a significant level of earnings in the wave after the baseline, and then loses the earnings again in the following wave. Twelve percent of food stamp openings for members of nonearner households are due to this sort of fluctuation.

Another striking feature of this pair of tables is the very high conditional probability of opening for members of nonearner households that gain new infants or other persons without income, or experience a startup of cash assistance in the absence of a measured change in resources or needs. These probabilities are in the 11 to 15 percent range--contrasted with only 4 to 5 percent for earner households. In fact, all of the conditional probabilities of openings are greater for nonearner than for earner households, suggesting that they may have fewer resources than earner households to avert a food stamp spell beginning when circumstances change for the worse.

Only 54 percent of nonearners who begin to receive food stamps have experienced one or more of the enumerated trigger events, compared with 90 percent for earners. There are undoubtedly other changes occurring in nonearner households that these definitions (or possibly the SIPP data) fail to capture. As noted earlier, these could be medical emergencies, local agency outreach efforts, and so on.

Occurrence of Trigger Events: Education Subgroups

Variations among individuals by educational status of the adults in their households are shown in Exhibits II.6 and II.7. Again, some substantial differences can be seen. Among

Exhibit II.4

OCCURRENCE OF TRIGGER EVENTS FOR OPENINGS:
INDIVIDUALS IN HOUSEHOLDS WITH EARNINGS IN BASELINE WAVE

Event	Percent of subgroup with event	<u>Conditional probability of:</u>	
		opening event	event opening
Household income decreased significantly, primarily because of:			
Decrease of earnings to household member	46.6	2.8	64.3
Loss of unemployment insurance benefits to household member	0.8	4.1	1.6
Decrease of other unearned income to household member	4.8	1.9	4.6
Departure of member with earnings	3.8	4.2	7.9
Departure of member with other income	0.5	5.1	1.2
Miscellaneous	0.5	2.4	0.6
New household member without income			
Infant	4.4	5.0	11.1
Other	3.3	5.0	8.2
Startup of cash assistance, with none of the above events	2.2	3.7	4.2
ALL EVENTS	61.7	2.9	89.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 59,088 observations.

- Notes: 1. This table includes only individuals whose household income is less than three times the poverty threshold income in the baseline wave (i.e., two waves before the food stamp opening).
2. The overall probability of an opening for this subgroup is 2.0 percent.
3. Probability of opening|event: proportion of individuals experiencing the event who enter the Food Stamp Program within one or two waves. Probability of event|opening: proportion of individuals entering the Food Stamp Program who experienced the event one or two waves previously.

Exhibit II.5

OCCURRENCE OF TRIGGER EVENTS FOR OPENINGS: INDIVIDUALS IN HOUSEHOLDS WITH NO EARNINGS IN BASELINE WAVE

ing	Event	Percent of subgroup with event	Conditional probability of:	
			opening event	event opening
	Household income decreased significantly, primarily because of:			
	Decrease of earnings to household member	3.6	6.2	10.7
	Loss of unemployment insurance benefits to household member	0.8	5.9	2.1
	Decrease of other unearned income to household member	20.5	2.2	21.0
	Departure of member with earnings	0.2	11.2	1.0
	Departure of member with other income	1.2	4.5	2.4
	Miscellaneous	0.2	5.9	0.7
	New household member without income			
	Infant	0.9	14.6	6.4
	Other	1.6	11.2	8.7
	Startup of cash assistance, with none of the above events	1.4	13.5	8.7
	ALL EVENTS	29.4	3.9	54.4

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 16,073 observations.

- Notes: 1. This table includes only individuals whose household income is less than three times the poverty threshold income in the baseline wave (i.e., two waves before the food stamp opening).
2. The overall probability of an opening for this subgroup is 2.1 percent.
3. Probability of opening|event: proportion of individuals experiencing the event who enter the Food Stamp Program within 1 or 2 waves. Probability of event|opening: proportion of individuals entering the Food Stamp Program who experienced the event one or two waves previously.

Exhibit II.6

**OCCURRENCE OF TRIGGER EVENTS FOR OPENINGS:
INDIVIDUALS IN HOUSEHOLDS CONTAINING HIGH SCHOOL GRADUATES
IN BASELINE WAVE**

Event	Percent of subgroup with event	<u>Conditional probability of:</u>	
		opening event	event opening
Household income decreased significantly, primarily because of:			
Decrease of earnings to household member	44.6	2.4	58.0
Loss of unemployment insurance benefits to household member	0.9	2.0	1.0
Decrease of other unearned income to household member	5.4	2.5	7.3
Departure of member with earnings	3.7	3.3	6.6
Departure of member with other income	0.5	4.9	1.3
Miscellaneous	0.5	2.9	0.7
New household member without income			
Infant	4.4	3.9	9.4
Other	3.2	4.7	8.1
Startup of cash assistance, with none of the above events	2.2	3.8	4.6
ALL EVENTS	60.4	2.6	83.3

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 52,602 observations.

- Notes: 1. This table includes only individuals whose household income is less than three times the poverty threshold income in the baseline wave (i.e., two waves before the food stamp opening).
2. The overall probability of an opening for this subgroup is 1.9 percent.
3. Probability of opening|event: proportion of individuals experiencing the event who enter the Food Stamp Program within 1 or 2 waves. Probability of event|opening: proportion of individuals entering the Food Stamp Program who experienced the event one or two waves previously.

Exhibit II.7

**OCCURRENCE OF TRIGGER EVENTS FOR OPENINGS:
INDIVIDUALS IN HOUSEHOLDS CONTAINING ONLY HIGH SCHOOL DROPOUTS
IN BASELINE WAVE**

ning	Event	Percent of subgroup with event	<u>Conditional probability of:</u>	
			opening event	event opening
	Household income decreased significantly, primarily because of:			
	Decrease of earnings to household member	43.3	5.9	49.4
	Loss of unemployment insurance benefits to household member	0.9	20.7	3.5
	Decrease of other unearned income to household member	6.4	6.9	8.5
	Departure of member with earnings	3.5	10.6	7.1
	Departure of member with other income	0.9	10.1	1.8
	Miscellaneous	0.4	2.9	0.2
	New household member without income			
	Infant	4.6	14.0	12.5
	Other	5.0	9.9	9.6
	Startup of cash assistance, with none of the above events	2.9	9.3	5.1
	ALL EVENTS	61.8	7.1	84.4

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 8,396 observations.

- Notes: 1. This table includes only individuals whose household income is less than three times the poverty threshold income in the baseline wave (i.e., two waves before the food stamp opening).
2. The overall probability of an opening for this subgroup is 5.2 percent.
3. Probability of opening|event: proportion of individuals experiencing the event who enter the Food Stamp Program within one or two waves. Probability of event|opening: proportion of individuals entering the Food Stamp Program who experienced the event one or two waves previously.

Exhibit II.8

**OCCURRENCE OF TRIGGER EVENTS FOR OPENINGS:
ABLE-BODIED, CHILDLESS INDIVIDUALS**

Event	Percent of subgroup with event	<u>Conditional probability of:</u> opening event opening	
Household income decreased significantly, primarily because of:			
Decrease of earnings to household member	37.4	2.0	62.4
Loss of unemployment insurance benefits to household member	0.9	0.0	0.0
Decrease of other unearned income to household member	5.2	2.4	10.4
Departure of member with earnings	3.6	1.6	4.9
Departure of member with other income	0.3	7.5	2.0
Miscellaneous	0.6	5.7	2.7
New household member without income			
Infant	3.7	3.3	10.2
Other	4.4	3.1	11.3
Startup of cash assistance, with none of the above events	2.2	1.2	2.4
ALL EVENTS	53.9	1.9	87.2

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 9,058 observations.

- Notes: 1. This table includes only individuals whose household income is less than three times the poverty threshold income in the baseline wave (i.e., two waves before the food stamp opening).
2. The overall probability of an opening for this subgroup is 1.2 percent.
3. Probability of opening|event: proportion of individuals experiencing the event who enter the Food Stamp Program within one or two waves. Probability of event|opening: proportion of individuals entering the Food Stamp Program who experienced the event one or two waves previously.

Exhibit II.9

**OCCURRENCE OF TRIGGER EVENTS FOR OPENINGS:
AGED AND DISABLED INDIVIDUALS**

Event	Percent of subgroup with event	<u>Conditional probability of:</u>	
		opening event	event opening
Household income decreased significantly, primarily because of:			
Decrease of earnings to household member	10.5	1.5	22.4
Loss of unemployment insurance benefits to household member	0.3	0.0	0.0
Decrease of other unearned income to household member	18.3	0.5	14.2
Departure of member with earnings	0.5	3.5	2.7
Departure of member with other income	1.1	0.6	1.0
Miscellaneous	0.4	1.5	0.9
New household member without income			
Infant	0.3	4.3	1.6
Other	1.1	2.8	4.5
Startup of cash assistance, with none of the above events	1.0	4.7	7.1
ALL EVENTS	32.9	1.0	49.8

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 16,617 observations.

- Notes: 1. This table includes only individuals whose household income is less than three times the poverty threshold income in the baseline wave (i.e., two waves before the food stamp opening).
2. The overall probability of an opening for this subgroup is 0.7 percent.
3. Probability of opening|event: proportion of individuals experiencing the event who enter the Food Stamp Program within one or two waves. Probability of event|opening: proportion of individuals entering the Food Stamp Program who experienced the event one or two waves previously.

Exhibit II.10

**OCCURRENCE OF TRIGGER EVENTS FOR OPENINGS:
ONE ADULT WITH CHILDREN**

ing	Event	Percent of subgroup with event	<u>Conditional probability of:</u>	
			opening event	event opening
	Household income decreased significantly, primarily because of:			
	Decrease of earnings to household member	34.1	6.1	57.5
	Loss of unemployment insurance benefits to household member	0.8	0.0	0.0
	Decrease of other unearned income to household member	8.3	3.7	8.5
	Departure of member with earnings	1.5	5.1	2.1
	Departure of member with other income	0.0	—	0.0
	Miscellaneous	1.4	0.0	0.0
	New household member without income			
	Infant	2.3	22.4	14.1
	Other	6.0	5.6	9.1
	Startup of cash assistance, with none of the above events	2.9	7.6	6.0
	ALL EVENTS	53.0	5.5	80.2

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 1,558 observations.

- Notes: 1. This table includes only individuals whose household income is less than three times the poverty threshold income in the baseline wave (i.e., two waves before the food stamp opening).
2. The overall probability of an opening for this subgroup is 3.6 percent.
3. Probability of opening|event: proportion of individuals experiencing the event who enter the Food Stamp Program within one or two waves. Probability of event|opening: proportion of individuals entering the Food Stamp Program who experienced the event one or two waves previously.

Exhibit II.11

OCCURRENCE OF TRIGGER EVENTS FOR OPENINGS:
MULTIPLE ADULTS WITH CHILDREN

Event	Percent of subgroup with event	<u>Conditional probability of:</u>	
		opening event	event opening
Household income decreased significantly, primarily because of:			
Decrease of earnings to household member	47.6	2.6	55.8
Loss of unemployment insurance benefits to household member	1.0	5.2	2.2
Decrease of other unearned income to household member	4.8	3.7	8.0
Departure of member with earnings	4.1	4.3	8.0
Departure of member with other income	0.6	9.5	2.3
Miscellaneous	0.4	2.4	0.4
New household member without income			
Infant	5.3	4.0	9.7
Other	3.3	6.1	9.1
Startup of cash assistance, with none of the above events	2.5	4.0	4.6
ALL EVENTS	63.6	3.0	86.3

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 23,177 observations.

- Notes: 1. This table includes only individuals whose household income is less than three times the poverty threshold income in the baseline wave (i.e., two waves before the food stamp opening).
2. The overall probability of an opening for this subgroup is 2.2 percent.
3. Probability of opening|event: proportion of individuals experiencing the event who enter the Food Stamp Program within one or two waves. Probability of event|opening: proportion of individuals entering the Food Stamp Program who experienced the event one or two waves previously.

Exhibit II.12

**OCCURRENCE OF TRIGGER EVENTS FOR OPENINGS:
CHILDREN LIVING WITH ONE ADULT**

Event	Percent of subgroup with event	<u>Conditional probability of:</u>	
		opening event	event opening
Household income decreased significantly, primarily because of:			
Decrease of earnings to household member	35.9	6.5	42.0
Loss of unemployment insurance benefits to household member	1.1	3.3	0.7
Decrease of other unearned income to household member	9.2	3.7	6.2
Departure of member with earnings	1.1	19.8	4.0
Departure of member with other income	0.1	27.9	0.5
Miscellaneous	1.0	0.0	0.0
New household member without income			
Infant	3.3	30.2	18.0
Other	6.2	10.2	11.5
Startup of cash assistance, with none of the above events	2.2	16.0	6.3
ALL EVENTS	54.9	7.1	70.4

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 2,739 observations.

- Notes: 1. This table includes only individuals whose household income is less than three times the poverty threshold income in the baseline wave (i.e., two waves before the food stamp opening).
2. The overall probability of an opening for this subgroup is 5.5 percent.
3. Probability of opening|event: proportion of individuals experiencing the event who enter the Food Stamp Program within one or two waves. Probability of event|opening: proportion of individuals entering the Food Stamp Program who experienced the event one or two waves previously.

Exhibit II.13

OCCURRENCE OF TRIGGER EVENTS FOR OPENINGS:
CHILDREN LIVING WITH MULTIPLE ADULTS

Event	Percent of subgroup with event	<u>Conditional probability of:</u>	
		opening event	event opening
Household income decreased significantly, primarily because of:			
Decrease of earnings to household member	48.9	3.0	58.5
Loss of unemployment insurance benefits to household member	0.8	7.2	2.3
Decrease of other unearned income to household member	4.7	3.2	6.0
Departure of member with earnings	3.5	5.2	7.2
Departure of member with other income	0.5	5.7	1.1
Miscellaneous	0.4	4.2	0.6
New household member without income			
Infant	4.9	5.5	10.4
Other	2.6	6.8	6.9
Startup of cash assistance, with none of the above events	2.2	6.0	5.1
ALL EVENTS	63.5	3.5	86.9

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 20,764 observations.

- Notes: 1. This table includes only individuals whose household income is less than three times the poverty threshold income in the baseline wave (i.e., two waves before the food stamp opening).
2. The overall probability of an opening for this subgroup is 2.6 percent.
3. Probability of opening|event: proportion of individuals experiencing the event who enter the Food Stamp Program within one or two waves. Probability of event|opening: proportion of individuals entering the Food Stamp Program who experienced the event one or two waves previously.

From a comparison of Exhibit II.8 with Exhibit II.10, it can be seen that this difference springs not from a greater probability of a potential trigger event occurring, but rather from the fact that the presence of children nearly triples the probability of an opening conditional on the potential trigger event having transpired.

It is important to bear in mind that the subgroups are defined as of the baseline wave. Thus, Exhibit II.10 shows entrance to the Food Stamp Program related to trigger events that occurred to households that already consisted of a single adult and children. The creation of such households through the breakup of a two-parent family, which may be an important trigger event for some individuals, will not be seen in this table. Instead, this would appear as a departure of an earner among multiple adult households with children. The trigger events of importance for the single parents are rather the addition of new infants or other household members without income, and the startup of cash assistance.

The patterns for multiple adults with children, in contrast, are quite similar to those for the population as a whole (Exhibit II.11), except that decreases in earnings to a household member are relatively more frequent. Furthermore, the patterns for children living in multiple-adult households resemble closely those of the adults in these households (Exhibit II.13). The same is not quite true, however, for children living with one adult. For these individuals, the probability of a food stamp opening conditional on a trigger event occurring is high, over 7 percent (Exhibit II.12).

Differences in patterns between the adults and children could come about in two ways. First, if some of these households split up in the months following the baseline wave, the events happening to the adults and the children of these households will not necessarily be the same. Second, if the patterns are different for households with few children and many children, the proportions of adults (i.e., families) experiencing the various events will not be the same as the proportions of children who do so. It will be recalled from Exhibit II.2 that the probability of a food stamp opening for single adults living with children was only 3.6 percent, while the probability for children living with single adults was 5.5 percent. This could be explained by households with more children having higher opening rates. A substantially greater proportion of the openings for the adults than for the children are associated with a loss of earnings to a

household member (57.5 percent in Exhibit II.10, versus 42.0 percent in Exhibit II.12), and a lesser proportion with the departure of a household member with income. All of these estimates for single-parent households with children, however, are based on rather small samples.

Summary

Approximately 2 percent of individuals not receiving food stamps in a given four-month period, but with household income less than three times the poverty threshold, will commence a spell of food stamp receipt in the subsequent four-month period. This percentage is markedly higher in households in which none of the able-bodied adults have high school diplomas (5 percent), and is lower in those in which all of the adults are aged or disabled (less than 1 percent). In addition, members of one-adult households with children are relatively more likely to begin to receive food stamps than other individuals (4 to 6 percent) while able-bodied childless adults are less likely (around 1 percent).

Variations are also seen in the distribution of events leading to the receipt of food stamps. For the population as a whole, loss of earnings to an ongoing household member is clearly the most important factor, occurring in over half of all food stamp openings. This event is much less common and less likely to be associated with a food stamp opening for individuals in households without earnings at baseline, or consisting entirely of elderly and disabled adults. For members of households without earnings, loss of unearned income is especially likely to be associated with an opening. The acquisition of a new baby or other household member without income is a particularly significant trigger event for members of one-adult households with children. Start-up of cash assistance in the absence of other changes in circumstances occurs in conjunction with about 5 percent of openings--especially concentrated among nonearners, households outside the labor force, and, to a lesser extent, the aged and disabled. Exhibit II.14 summarizes the previous results on what percentage of openings for each subgroup is associated with each of the major trigger events.

The probability that a trigger event will be followed by an opening varies markedly by subgroup as well. For the population as a whole, 3 percent of those experiencing any trigger event begin to receive food stamps. This percentage is substantially higher for members of

Exhibit II.14

DISTRIBUTION OF TRIGGER EVENTS FOR OPENINGS: ALL SUBGROUPS

Subgroup	Decreased earnings to household member	Decreased unearned income to household member	<u>Departure of member:</u>		New infant	New other member with no income	New cash assistance	All events
			with earnings	with unearned income				
Earners	64.3%	6.2%	7.9%	1.2%	11.1%	8.2%	4.2%	89.0%
Nonearners	10.7	23.1	1.0	2.4	6.4	8.7	8.7	54.4
High school graduates	58.0	8.3	6.6	1.3	9.4	8.1	4.6	83.3
High school dropouts	49.4	12.0	7.1	1.8	12.5	9.6	5.1	84.4
Able-bodied, childless	62.4	10.4	4.9	2.0	10.2	11.3	2.4	87.2
Aged and disabled, childless	22.4	14.2	2.7	1.0	1.6	4.5	7.1	49.8
One adult living with children	57.5	8.5	2.1	0.0	14.1	9.1	6.0	80.2
Multiple adults living with children	55.8	10.2	8.0	2.3	9.7	9.1	4.6	86.3
Children living with one adult	42.0	6.9	4.0	0.5	18.0	11.5	6.3	70.4
Children living with multiple adults	58.5	8.3	7.2	1.1	10.4	6.9	5.1	86.9
ALL INDIVIDUALS	53.1	9.7	6.4	1.5	10.1	8.3	5.1	81.8

Source: 1984 SIPP Panel (June 1983 to June 1986).

Note: The percentages in this table represent the proportion of all food stamp openings that are associated with each event.

households without earnings (4 percent), households headed by high school dropouts (7 percent), and members of one-adult households with children (6 to 7 percent), suggesting that these types of households are likely to be on the economic margin. The probability of opening when a trigger event has occurred is quite low for members of households consisting entirely of aged and disabled adults (1 percent), suggesting that these households have achieved a certain stability. Even for the subgroups with the greatest probability of a food stamp opening after a trigger event, however, only a small percentage begin to receive food stamps.

Finally, we note that there are some (overlapping) subgroups for which the trigger events analyzed here have little explanatory power; in particular, households without earnings, and the aged and disabled. The kinds of events that lead these households to enter the Food Stamp Program may be outside the scope of these data. Among these unmeasured events may be increased medical needs, increased shelter needs (e.g., due to an eviction or rent increase), outreach by community groups or by the food stamp agency itself, depletion of assets, and disasters such as fire or theft. For some households, the immediate trigger may be the simultaneous occurrence of several such events, no one of which would have had sufficient force to bring about an application. Thus, trigger event analysis cannot be expected to explain all food stamp openings, although it can shed light on the relative importance of certain occurrences.

CHAPTER THREE

DURATION OF RECEIPT

This chapter addresses the question of how long new food stamp recipients tend to remain on the program. Findings on lengths of completed spells are presented first for individuals covered by the program, and then for the longitudinal households of which they are members.

Length of Completed Spells for Individuals

Exhibit III.1 presents the frequency distribution of lengths of completed spells for all individuals who enter the Food Stamp Program.¹ The mean and other summary statistics are shown in Exhibit III.2.² The key features are:

- The median length of receipt for new recipients is 6 months. That is, half of all food stamp spells end in six months or less.
- The average spell length is considerably greater: 22 months.
- Over forty percent of all new food stamp recipient spells are 4 or fewer months long. About a third are over 12 months long, and about 20 percent last more than 2 years.

Higher closure rates appear in the distribution at 4, 8, 12, and 16 months. These are an artifact of the SIPP data, corresponding to concentrations of individuals who reported coverage for exactly one or more full waves. This phenomenon is known as the "seam effect"--the tendency of reported transitions to pile up at the seams between interview periods rather than to be spread evenly across all months. The rise at 12 months, however, is probably not entirely an artifact. Many spells of food stamp receipt last exactly 12 months because that marks

¹See Appendix C for a description of the hazard rate methodology used to derive this distribution.

²As discussed in Appendix C, the estimate of mean duration was calculated based on the observed closure rate for all spells, including left-censored ones. It is thus based on a fuller sample than the estimate of the median and other statistics of the distribution of completed spell lengths.

Exhibit III.1**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS:
ALL INDIVIDUALS**

Months	Probability of Closure	Cumulative Probability of Closure
1	12.7%	12.7%
2	9.6	22.2
3	5.1	27.3
4	13.8	41.1
5	4.1	45.2
6	5.7	50.9
7	3.1	54.0
8	6.4	60.4
9	1.3	61.7
10	2.5	64.2
11	1.2	65.3
12	2.8	68.1
13	0.9	69.0
14	0.7	69.7
15	1.1	70.9
16	2.6	73.5
17	0.8	74.3
18	0.5	74.8
19	2.3	77.1
20	0.3	77.4
21	0.2	77.5
22	0.0	77.5
23	2.7	80.3
24	0.0	80.3
25+	19.7	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
1. Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 2. Median: 6 months.
 3. Unweighted sample size: 2,623 spells.

Exhibit III.2

LENGTH OF FOOD STAMP SPELLS FOR SUBGROUPS OF INDIVIDUALS

	Unweighted sample size	Median	Percent receiving food stamps ≤ 4 months	Percent receiving food stamps ≤ 12 months	Percent receiving food stamps > 24 months	Mean (months)
Earners	1,556	5	47.8%	76.8%	12.1%	13.8
Nonearners	1,067	10	31.3	55.6	31.3	30.1
High school graduates	1,688	6	43.8	69.8	18.3	17.0
High school dropouts	772	7	37.1	67.1	21.4	27.2
Able-bodied, childless	218	5	48.1	78.2	12.6	13.5
Aged and disabled	205	8	42.2	62.8	24.2	29.9
One adult with children	165	9	27.4	55.3	34.3	36.8
Multiple adults with children	839	5	47.2	72.9	12.7	15.5
Children with one adult	340	12	24.0	50.7	38.7	39.2
Children with more than one adult	785	6	40.4	70.9	15.5	19.5
ALL INDIVIDUALS	2,623	6	41.1	68.1	19.7	21.6

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Note:
1. Estimates (except for mean) are based on all non-left-censored spells beginning in or after the fifth month of the observation period.
 2. Estimates of the mean are based on the closure rate in all spells in or after the fifth month of the observation period. See Appendix C for details of computation.

the end of a certification period.^{1,2} The increase at 6 months is also consistent with the widespread use of 6-month certification periods.

Exhibit III.2 summarizes the distribution of length of spells for the subgroups of individuals. (The details of the distributions are presented in Appendix E). All subgroups are defined as of the first month of receipt of food stamp benefits. The last line of the table presents the corresponding summary statistics for the recipient population as a whole, taken from Exhibit III.1.

Recipients whose households contain earners at the time the spell begins clearly have much shorter spells on average than recipients whose households do not contain earners. The median completed spell lengths for these two groups are 5 and 10 months, respectively, while the corresponding means are 14 and 30 months. The remaining statistics tell the same story: earners are substantially more likely than nonearners to exit within four months (48 versus 31 percent), and substantially less likely to receive food stamps for over two years (12 versus 31 percent).³ The overall difference between the two distributions is statistically significant at the 1 percent level.⁴

¹These results are based exclusively on the core SIPP data, described in Appendix A. For a discussion of the analogous information in the Welfare History Topical Module and its unsuitability for the current research, see Appendix D.

²Burstein and Visser (1989) derived quite similar statistics based on a nationally representative administrative data set that covered the period from October 1980 to December 1983. Their unit of analysis was the food stamp case rather than the individual. Hence cases with more members were weighted relatively less heavily than in the current analysis. They found a slightly greater median spell length of 7 months, and a somewhat lower percentage of spells lasting 4 or fewer months (36 rather than 41 percent). However, 33 percent of spells were found to last over 12 months (versus 32 percent in the current study), and 20 percent were found to last over two years (identical).

³Burstein and Visser found a median spell length of 6 months for cases with earnings. Forty-two percent exited within 4 months, and 12 percent received food stamps for over 2 years. As for the food stamp population as a whole, the administrative data showed a somewhat greater concentration of spell lengths between 5 and 12 months relative to spell lengths between 1 and 4 months than did the survey data analyzed here; but otherwise the distributions look quite similar.

⁴The log rank test on the survivor functions (described in Appendix C) yields a chi-squared statistic of 107.7 for the null hypothesis that the two sets of food stamp spells come from the same distribution.

Some variation is also seen when recipients are classified by educational status. It should be recalled that this partition excludes members of households in which all the adults are aged or disabled. For individuals in households which contain a high school graduate, the median duration is 6 months and the mean is 17 months--somewhat shorter than for the recipient population as a whole. For individuals in households where the adults do not have high school diplomas, the median duration is a little longer (7 months), while the mean is substantially longer (over two years).¹

Finally, the demographic subgroups show a wide variety of patterns. The groups with the shortest spells are the able-bodied adults--both those who live only with other able-bodied adults, and those who live with other adults and children. Members of these subgroups have nearly a 50 percent chance of leaving the Food Stamp Program within four months of entry, and only a 13 percent chance of remaining on the program for over two years. Mean duration for these individuals is 14 to 16 months.

Children living with multiple adults, however, tend to have somewhat longer spells on average than these adults. This suggests that larger households have longer spells. (The difference in means would come about because a large household would have the same number of adults as a smaller household, but would have more children.) In addition, it may be that some of the adults split off from the households, leaving the children behind still as food stamp recipients. Even so, these children have substantially shorter stays than their counterparts in one-adult households--20 versus 39 months on average. In fact, children in one-adult households have the longest spells of any of the demographic subgroups, with barely half leaving the program within a year of entry. The adults in these households have slightly shorter spells², with a mean length of 37 months.³

¹The log rank chi-squared for this comparison is 4.1, significant at the 5 percent level.

²Although the difference in median spell length between adults and children in these households appears large (12 versus 9 months), the overall distributions of spell lengths do not differ significantly (chi-squared = 1.00). That is, because of the small sample size for these two subgroups, the summary statistics cannot be estimated very precisely.

³The distribution for one-adult households with children may be compared with the distribution for the roughly similar subgroup of AFDC recipients in Burstein and Visser. The latter had a median spell length of 14 months, with only 17 percent of spells ending with four months and 34 percent lasting over two years. The administrative data for AFDC cases thus

The remaining group--the aged and disabled--has a mean duration of 30 months. One quarter of this group remains on the Food Stamp Program continuously for at least two years.¹

The full distributions of spell length were compared for four pairs of demographic subgroups: able-bodied versus aged and disabled, children living with one adult versus children living with multiple adults, single parents versus able-bodied childless adults, and single parents versus adult members of multiple-adult households with children. In all four instances, the pairs of survivor functions were statistically significantly different at the 1 percent level.²

Length of Completed Spells for Households

There has been much controversy about the proper definition (if any) of a longitudinal household.³ In the SIPP data, households are classified each month according to whether they contain a family--i.e., two or more individuals related by blood or marriage--and whether they are headed by an unmarried man, an unmarried woman, or a married couple. Both the identity and marital status of the head are recorded as reported by the interviewer. The five household types are thus:

- married-couple household
- other family household, female head

confirms that this household type tends to receive food stamps longer than other types, but shows a greater concentration of longer spell lengths among those spells that last up to about two years than is found in the survey data analyzed here.

¹Burstein and Visser define the elderly as households containing an individual aged 65 or older. For this subgroup, the administrative data show a median spell length of 19 months, much longer than the eight-month median found for the aged and disabled in the SIPP data. Only 15 percent exited in four months, and 41 percent had spells that lasted more than two years. The corresponding statistics from the SIPP are 42 and 24 percent. Thus the administrative data show substantially longer spells for the elderly than do the survey data. It could be argued that part of the difference could be due to the differences in subgroup definition, and perhaps in the time frame (1980-1983 versus 1983-1986). As reported in Chapters Two and Four, however, food stamp openings and closings for the elderly and disabled are only poorly correlated with the occurrence of measured trigger events. This suggests another hypothesis, that response error may be particularly great for this subgroup. If so, the average spell length in the SIPP may be underestimated.

²The log rank chi-squared statistics were 11.2, 32.4, 21.1, and 17.7, respectively.

³See, for example, McMillen and Herriot (1985), and Duncan and Hill (1985).

- other family household, male head
- nonfamily household, female head
- nonfamily household, male head.

In the SIPP data, a longitudinal household is said to continue from one month to the next if it remains the same household type, if it retains the same reference person or householder, and if it retains the same householder's spouse (if any). In other words, the key person(s) of the household must be unchanged. Any of the following events will therefore lead to a discontinuity: death or departure of householder, death or departure of householder's spouse, marriage of householder, death or departure of either member of a two-member family household, birth of a child to a woman living alone, or acquisition of a family member to a person living alone. In the sample of original interviewees, one out of six experienced a change in household reference person or spouse over the 32 months of observation.

The logic behind the SIPP household definition is that after a major change in composition, the household is so altered that it cannot legitimately be called the same household as before. An implication of this, however, is that the clock of food stamp receipt is reset to zero for a group of individuals whenever the household type changes, but not otherwise. As a consequence, the distribution of spell lengths for households may be misleadingly low, if many groups of individuals continue to receive food stamps despite changes in household type. Conversely, it could be misleadingly high, if many individuals leave and enter households that receive food stamps. Suppose, for example, a married couple household that was receiving food stamps for a year splits into two households, and both individuals continue to receive food stamps for another year. Then the household level data will show three spells of receipt of one year each, although at the individual level there were two individuals receiving food stamps for two years each.

Situations like these suggest that analyzing spell lengths for individuals will provide more useful information about how long people receive food stamps than analyzing spell lengths for households. Most earlier research on the Food Stamp Program, however, has focused on the household as the unit of analysis. For purposes of continuity and comparability, we have therefore replicated the individual-level analyses presented above, using the Bureau of the

Exhibit III.3

**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS:
ALL HOUSEHOLDS**

Months	Probability of Closure	Cumulative Probability of Closure
1	14.1 %	14.1 %
2	9.3	23.4
3	6.9	30.3
4	10.5	40.8
5	4.4	45.2
6	6.7	51.9
7	3.2	55.1
8	4.2	59.3
9	1.7	61.0
10	2.1	63.1
11	1.4	64.4
12	2.6	67.0
13	1.3	68.3
14	1.6	69.9
15	1.7	71.6
16	1.5	73.1
17	1.4	74.4
18	1.2	75.6
19	1.7	77.3
20	0.4	77.7
21	0.0	77.7
22	0.0	77.7
23	2.4	80.0
24	0.0	80.0
25+	20.0	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
1. Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 2. Median: 6 months.
 3. Unweighted sample size: 963 spells.

Census definition of the household that is employed in SIPP. Comparison of the individual- and household-level distributions provides evidence as to how significant the distinction really is.

Exhibit III.3 shows the length of completed spells of food stamp receipt for longitudinal households. Despite the ambiguity in the definition of a longitudinal household and the potential for bias in estimated spell lengths, the distribution is practically identical to that for individuals. The median spell length is identical at 6 months; the mean spell length of 21.3 months differs only slightly from the mean for individuals; and the proportions of spells ending within 4, 12, and 24 months are all very similar to the corresponding statistics in Exhibit III.1. It appears that the putative downward bias associated with household dissolution is either rendered unimportant by the coincidence of food stamp transitions with major household changes, or else counterbalanced by an upward bias from new entries and split-offs. The great similarity between the two distributions is shown graphically in Exhibit III.4.

Comparison of Exhibits III.2 and III.5 indicates that within subgroups as well, the distribution of length of completed spell is very similar for individuals and for households.¹ The household-level data appear to yield somewhat longer spells for the aged and disabled. Subgroups for which the household data indicate shorter spells are those in which the adults are not high school graduates, and those containing children. Even these differences, however, are relatively small.

While it is possible in principle that these differences represent the net effects of several important counterbalancing forces, this turns out not to be the case. As demonstrated in Appendix G, the events associated with individuals continuing to receive food stamps, while the households to which they belonged no longer do so or have ceased to exist, are quite rare, occurring to only 1 percent of recipients per month. The greatest concentration of these events is seen among able-bodied, childless adults, with a monthly rate of 1.7 percent. Similarly, the events associated with individuals ceasing to receive food stamps, while their households (or former households) continue to do so, are also quite rare, occurring to only 0.6 percent of the food stamp population per month. Again, the greatest concentration is among able-bodied, childless adults, with a monthly rate of 1.1 percent. Thus, not only are the net effects of these two kinds of events small but the separate effects are small as well. We conclude that

¹The details of the distributions for subgroups of households appear in Appendix F.

Exhibit III.4

**DISTRIBUTION OF LENGTHS OF SPELLS FOR
HOUSEHOLDS AND INDIVIDUALS**

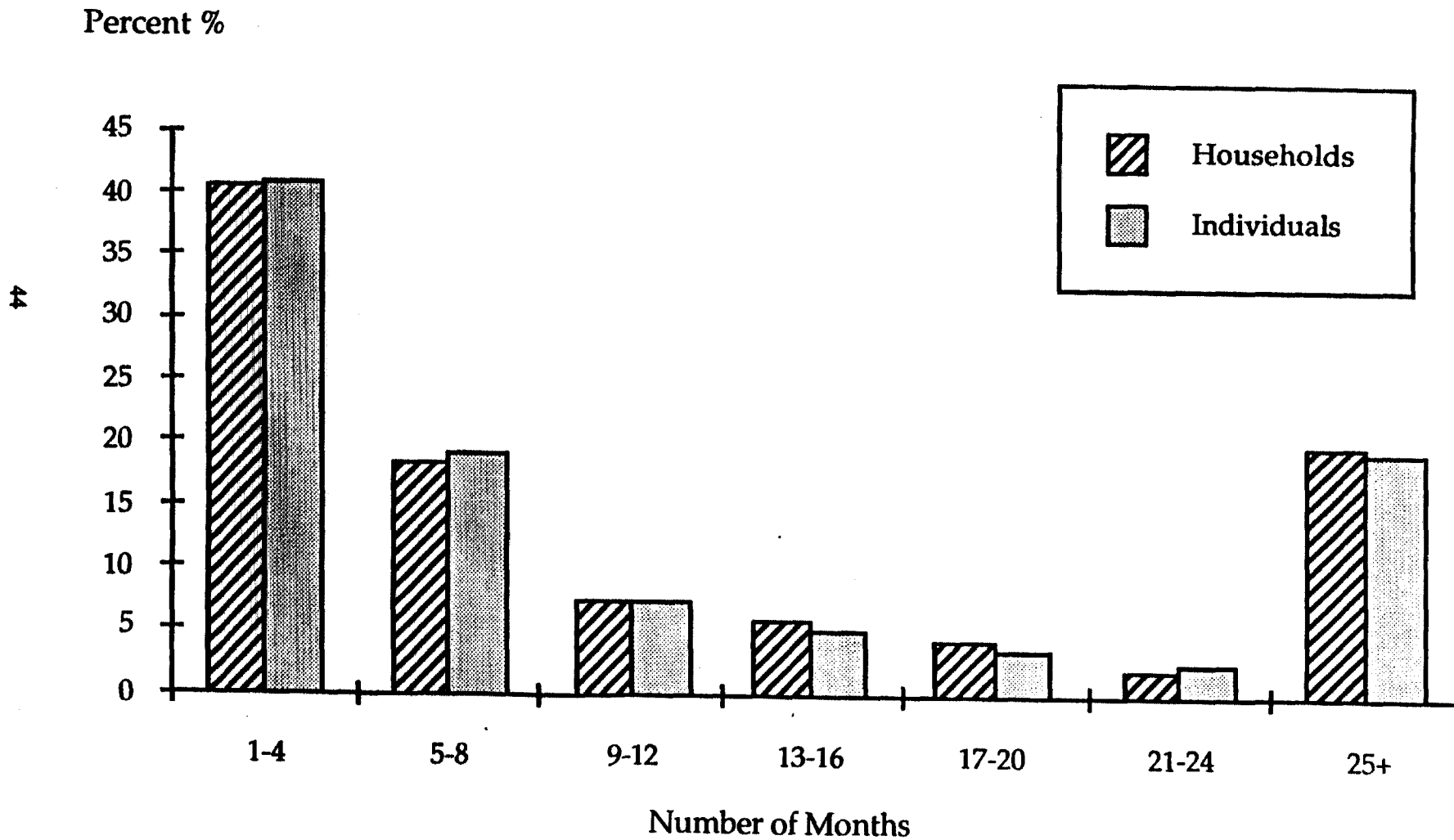


Exhibit III.5**LENGTH OF FOOD STAMP SPELLS FOR SUBGROUPS OF HOUSEHOLDS**

	Unweighted sample size	Median	Percent receiving food stamps ≤ 4 months	Percent receiving food stamps ≤ 12 months	Percent receiving food stamps > 24 months	Mean (months)
Earners	481	4	50.7%	76.7%	9.8%	12.3
Nonearners	482	10	30.5	57.1	30.4	29.0
High school graduates	544	6	44.2	72.0	14.5	16.2
High school dropouts	284	6	41.2	64.8	23.8	22.9
Able-bodied, childless	158	5	47.1	78.1	13.9	13.7
Aged and disabled	158	11	29.4	54.9	31.8	32.5
One adult with children	212	10	27.2	54.1	36.5	29.9
Multiple adults with children	414	5	48.2	72.9	9.4	15.6
ALL HOUSEHOLDS	963	6	40.8	67.0	20.0	21.3

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Note:
1. Estimates (except for mean) are based on all non-left-censored spells beginning in or after the fifth month of the observation period.
 2. Estimates of the mean are based on the closure rate in all spells in or after the fifth month of the observation period. See Appendix C for details of computation.

distributions of spell lengths based on household level data, though potentially biased in theory, are not visibly biased in practice.

Summary

Half of all new food stamp recipient spells reported in the SIPP are no more than 6 months long, and two-thirds end within a year. The average spell length is 22 months.

There are substantial variations from this pattern for certain subgroups, however. Individuals in households that contain earners at the start of the spell, that consist entirely of able-bodied adults, or that, if they contain children, include more than one adult, tend to receive food stamps for considerably less time. This suggests that policies that are designed to hasten the exit of such recipients from the food stamp rolls may be redundant. Longer spells are seen among households that lack earners, those in which the only adults are aged and disabled, those in which the only able-bodied adults are high-school dropouts, and especially those which consist of a single adult with one or more dependent children. The implication is that policies that addressed the barriers to employment of the latter two subgroups (e.g., need for remedial education and child care) could have the potential for shortening food stamp spells.

Although the definition of a longitudinal household is somewhat ambiguous, the spell length distributions for individuals and households were found to be quite similar, both for the various subgroups and for the population as a whole.

constant over time.¹ Jurisdictional closures will not look like exits in these data, if the household is followed to its new location. Administrative closures that last for only one month have been filled in, i.e., the data indicate that no closure has occurred. Hence, we would expect to find trigger events associated with the great majority of closures. This is indeed the case for the recipient population in general, although the trigger event framework is less fruitful for the aged and disabled. For all subgroups except this one, an increase in earnings to household members is the most common trigger event for an exit. Variations are seen across all the subgroups, however, in the relative importance of other events.

We conclude this chapter with an examination of recidivism to the program. Nearly 40 percent of recipients are found to reenter the Food Stamp Program within a year of leaving it.

Definition of Trigger Events

The primary trigger events that could potentially lead to a person no longer receiving food stamps are:

- increased household income--due either to a member of the household gaining income, or to someone with income joining the household;
- reduced need--the departure from the household of a person who has no income; and
- departure from the SIPP sample--through death, institutionalization, emigration, or induction into the Armed Forces.

As in the analysis of food stamp openings in Chapter Two, the household is defined as the set of people currently living with the individual whose food stamp coverage is being considered. Thus a new earner could enter an individual's household in two ways: the earner could move in with the individual, or alternatively the individual could move to a different household which contains the earner.

A closure is said to occur if an individual who was covered for one or more months during a four-month wave is not covered for any months during the succeeding wave. Only

¹The benefits of participation could decline if a recipient's entitlement decreased; but this would represent a circumstantial change. Note that we do not attempt to measure eligibility explicitly, but treat all increases in resources and decreases in needs as circumstantial changes.

individuals who were covered in the preceding wave are at risk for a closure. An individual may contribute multiple observations to the analysis sample--as many as five, if food stamps were received in each of Waves 3 through 7.¹

As in Chapter Two, the trigger events have been defined rather broadly, in an attempt to capture as much of the associated activity as possible. For example, an individual may depart from the sample (through death, institutionalization, etc.) either in the wave of closure or in the preceding wave. Thus, we may observe that a deceased sample member last received food stamps in Wave 6. The closure is associated with Wave 7 (the first wave in which food stamps were not received). The death itself may have occurred in either Wave 6 or Wave 7, and be counted as the trigger event in either event.²

Similarly, a person who last received food stamps in Wave 6 may have experienced an increase in total household income. This increase may be seen as higher income in Wave 7 than in Wave 6 if, for example, the earnings first show up in month 1 of Wave 7.³ Alternatively, the increase may be seen as higher income in Wave 6 than in Wave 5, if a person got a job during Wave 6 but still received food stamps for all or part of that wave. In either case, the increase in income is counted as a potential trigger event.

¹Wave 2 is not used as a preceding wave because case characteristics must be examined in the next earlier wave in order to construct the trigger events, and Wave 1 data on household composition are not comparable with those of later waves.

²If the death occurred in the wave before the closure, the death is not counted as a potential trigger event for closure in the earlier wave. Thus by construction, events such as death cause an exit with a probability of 1.

³Technically speaking, we would expect some overlap in months with new earnings and months with food stamps before a person exited the Program because stamps are generally issued at the beginning of the month. When these events are reported, however, it is likely that the respondent would mentally classify months of the reference period as being either "food stamp" or "earnings" months. Hence overlap would not necessarily be reported. Furthermore, even if earnings were first obtained in the second or third month of the reference period, it would not be too surprising if the respondent mentally backfilled them throughout the period. We thus allow an earnings increase which appears to be simultaneous with an exit to count as a trigger event for the exit.

In identifying the type of income increase, we first determine whether an increase occurred in the current or preceding wave. If increases occurred in both waves, we pick the larger of the two. We then determine which component made the greatest contribution to the increase in household income between the two consecutive waves: a new earner, an increase in earnings to a current household member, a new member with unearned income, or an increase in unearned income to a current member. A particular event such as a new job is thus a potential trigger event for a food stamp closure in both the same wave and the following wave. The question of how large a change in household income must be, in order to count as a trigger event rather than a mere fluctuation, is explored in Appendix B. A cutoff of \$400, corresponding to an increase in household income of \$100 per month, was selected. If the total increase in household income exceeds \$400, but no individual component does so, then the change in income is classified as "miscellaneous."

Finally, decreases in the number of individuals without income are also examined both between pairs of consecutive waves. The event considered is the absence of an individual from the household in the later wave who was present without income in the earlier wave of the pair--regardless of whether the total number of individuals who are not contributing income to the household has gone up or down. The departure of such a person is a potential trigger event for a closure in either the same wave or the following one.

The recipient subgroups are defined based on characteristics in the next to last wave before the potential closure, called the baseline wave. For example, if an individual received food stamps in Wave 4 and we are investigating whether a closure occurred in Wave 5, we classify the individual according to characteristics in Wave 3. This ensures that the subgroups are defined prior to the occurrence of the putative trigger events. (Recall that a change in household income between Waves 3 and 4 may trigger a closure in Wave 5.) In particular, the demographic and educational categories are determined as of the first month of the baseline wave, while the presence of earnings in the household is determined by looking at the baseline wave in its entirety.

Overall Probability of Exit

Exhibit IV.1 provides an overview of the probability of closure for the food stamp population as a whole and for the various subgroups. The bottom line of the exhibit indicates that 15 percent of individuals covered by food stamps in a given wave were not covered in the following wave. This corresponds to a monthly exit rate of about 4 percent--although the exits tend to be piled up at the seams between the waves. There is, however, substantial variation in this rate by subgroup. Individuals in households with earnings have a 22 percent chance of exiting during a wave, while individuals in households without earnings have only an 8 percent chance. Thus earners as a subgroup comprise less than half of the recipient population, but they account for nearly three-quarters of the exits.¹

Education makes almost as great a difference as presence of earnings in predicting exits. Individuals in households containing an able-bodied, non-elderly high school graduate have a 19 percent chance of exiting, while individuals in households in which none of the able-bodied, non-elderly adults have a high school diploma, have an exit probability of only 11 percent.

Among demographic subgroups, the greatest exit probabilities are seen among individuals in households consisting only of able-bodied, non-elderly adults (23 percent) and among adults living with other adults and children (20 percent). The lowest rates are seen for individuals

¹This proportion of food stamp recipients living in households that contain an earner is surprisingly high. Studies of the food stamp population based on Quality Control System data show that only 20 percent of food stamp households have earnings.

Most of the difference is simply definitional. It is to be recalled that the unit of observation in Exhibit IV.1 is the individual, rather than the household; and that the presence of earnings is determined based on a four month period rather than a single month. When we examine the presence of earnings in the last month only of each wave, and weight each individual by the inverse of household size (so as to count each household equally), the estimated proportion of the food stamp caseload with earnings in the SIPP drops to 32.4 percent. The remaining discrepancy of some 12 percentage points relative to the administrative data must be attributed to (a) differential reporting of earnings between the survey and administrative data; (b) misreporting of food stamp status in the SIPP; and (c) the fact that some household members' earnings are not countable from the point of view of the Food Stamp Program.

Exhibit IV.1**OVERALL PROBABILITY OF EXITING FROM THE FOOD STAMP PROGRAM
BETWEEN TWO CONSECUTIVE FOUR-MONTH PERIODS**

	Percent of recipients	Percent closing in next four months	Percent of closings
Earners	47.9%	22.1%	70.8%
Nonearners	52.1	8.4	29.2
High school graduates	50.3	19.2	64.6
High school dropouts	38.4	10.9	28.0
Able-bodied, childless	5.7	23.3	9.0
Aged and disabled, childless	11.3	11.7	9.0
One adult living with children	11.3	9.4	7.2
Multiple adults living with children	24.0	20.3	33.0
Children living with one adult	22.2	9.2	13.9
Children living with multiple adults	25.6	16.1	27.9
ALL RECIPIENTS	100.0	14.9	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 12,268 observations.

- Notes:
1. The percentages shown pertain to Waves 3 through 8 combined.
 2. For definitions of population subgroups, see Exhibit II.1. High school graduate and dropout subgroups do not sum to 100 percent of the population because individuals in households containing only elderly or disabled adults are excluded.

living in single-adult households with children (9 percent). The two remaining subgroups are not too far from the population average: the elderly and disabled (12 percent probability of exit) and children living with multiple adults (16 percent probability of exit).

Occurrence of Trigger Events: All Recipients

Exhibit IV.2 shows the occurrence of the previously defined trigger events for all recipients. As shown in the last line of the exhibit, 51 percent of recipients experience one or more of these events. Their exit probability is then 24 percent, substantially higher than the rate for the recipient population as a whole (15 percent). From another perspective, over 80 percent of those that exit the Food Stamp Program experienced a trigger event.

Turning to the individual events, we see that in any four-month period, 0.7 percent of recipients leave their households due to death, institutionalization, or other similar events.¹ All of these individuals exit the Food Stamp Program, by definition. They account for 4.4 percent of all closures.

Increases in household income are much more common. As noted above, a cutoff of \$400 between waves was used. Forty-seven percent of recipients experience an increase in household income of at least this amount. In nearly two-thirds of these cases, the increase is due solely or primarily to an ongoing household member obtaining or increasing earnings. Nearly all of the remainder of increases in household earnings are attributable to increases in unearned income received by ongoing household members. A small percentage of increases are due to new household members bringing in earned or unearned income.

The second column of this exhibit shows an interesting pattern. Increases in household income that are due to changes in earnings are one and one-half times to twice as likely to be associated with a food stamp closure than those that are due to changes in unearned income--regardless of whether the income is from an ongoing or a new household member. In fact,

¹It is not completely clear what the "other" subcategory represents in this regard. These are individuals who were assigned positive longitudinal weights by the Bureau of the Census, indicating that they did not attrit from the sample, but rather left the SIPP sample frame of households. An explanation that has been suggested is that some of these individuals were assigned positive longitudinal weights in error--e.g., children who turned 15 in the course of the panel and who were not followed when they moved to new households. (David McMillen, private conversation.)

Exhibit IV.2
OCCURRENCE OF TRIGGER EVENTS FOR CLOSURES:
ALL RECIPIENTS

Event	Percent of all recipients with event	Conditional probability of:	
		exit event	event exit
Left the sample	0.7%	100%	4.4%
Died	0.2	100	1.4
Was institutionalized	0.1	100	0.8
Entered armed forces	0.0	100	0.1
Emigrated	0.0	100	0.1
Other	0.3	100	2.0
Household income increased significantly, primarily due to:			
New member with earnings	2.6	28.3	4.9
New member with unearned income	0.7	19.0	0.9
Ongoing member obtaining or increasing earnings	29.8	28.6	57.0
Ongoing member obtaining or increasing unearned income	13.1	12.7	11.2
Other	0.7	11.1	0.6
Departure of or from persons without income	8.8	21.8	12.9
ALL EVENTS	51.2	23.7	81.3

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 12,268 observations.

- Notes: 1. The overall probability of a closing for all recipients is 14.9 percent.
2. Probability of exit|event: proportion of individuals experiencing the event who exit from the Food Stamp Program within one or two waves. Probability of event|exit: proportion of individuals exiting from the Food Stamp Program who experienced the event one or two waves previously.

individuals whose household income increases by at least \$400 due to additional unearned income to an ongoing member are no more likely to leave the Food Stamp Program than the average recipient (12.7% versus 14.9%). The final column shows that around 75 percent of all exits can be associated with an increase in household income--and 57 percent with an increase in earnings to ongoing members.

The final trigger event considered is the departure of one or more household members who do not have income, or equivalently, the splitting off of the recipient from the household members without income. This event occurs to 9 percent of recipients, who then have a 22 percent chance of leaving the Food Stamp Program. This event is thus associated with 13 percent of all closures.

The income and departure events may overlap to some extent. The final line of the exhibit therefore corresponds to the occurrence of one or more of the above-mentioned trigger events. Roughly half of all recipients experience at least one of these events; those that do experience at least one of these events have nearly one chance in four of exiting, thus accounting for over 80 percent of all closures.¹

Occurrence of Trigger Events: Earners vs. Nonearners

Exhibits IV.3 and IV.4 present corresponding information for earners and nonearners. There are several striking differences between the two tables:

- Death and institutionalization, which are associated with less than 1 percent of exits for individuals living in households with earnings at

¹As in Chapter Two, it is not possible to compare these results with those drawn from the Panel Study of Income Dynamics by Burstein and Visher (1989). Those authors found that 5 percent of closings were associated with a change in the identity or marital status of the head; another 6 percent with some other net increase in the number of adults present; 53 percent with an increase in earnings; 4 percent with the death of the last household member; and 6 percent with other decreases in household size. The most important reason that the results are noncomparable is that changes in household composition that are linked to changes in income are classified differently in the two reports. There are also important differences in the time unit of analysis (a year versus four months), and in the cutoff for counting a change in income as significant (\$500 in 1978 dollars from one year to the next versus \$400 in current dollars from one four-month period to the next).

Exhibit IV.3
OCCURRENCE OF TRIGGER EVENTS FOR CLOSURES:
EARNERS

Event	Percent of all recipients with event	<u>Conditional probability of:</u>	
		exit event	event exit
Left the sample	0.4%	100%	1.7%
Died	0.2	100	0.7
Was institutionalized	0.1	100	0.2
Entered armed forces	0.0	100	0.2
Emigrated	0.0	100	0.2
Other	0.1	100	0.4
Household income increased significantly, primarily due to:			
New member with earnings	3.0	35.1	4.7
New member with unearned income	0.8	20.6	0.7
Ongoing member obtaining or increasing earnings	47.2	29.8	63.8
Ongoing member obtaining or increasing unearned income	8.8	21.3	8.5
Other	0.9	15.1	0.6
Departure of or from persons without income	12.3	22.8	12.7
ALL EVENTS	66.0	27.9	83.4

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 5,762 observations.

- Note: 1. The overall probability of a closing for earners is 22.1 percent.
2. Probability of exit|event: proportion of individuals experiencing the event who exit from the Food Stamp Program within one or two waves. Probability of event|exit: proportion of individuals exiting from the Food Stamp Program who experienced the event one or two waves previously.

Exhibit IV.4
OCCURRENCE OF TRIGGER EVENTS FOR CLOSURES:
NONEARNERS

Event	Percent of all recipients with event	<u>Conditional probability of:</u>	
		exit event	event exit
Left the sample	0.9%	100%	11.2%
Died	0.3	100	3.1
Was institutionalized	0.2	100	2.2
Entered armed forces	--	100	--
Emigrated	--	100	--
Other	0.5	100	5.8
Household income increased significantly, primarily due to:			
New member with earnings	2.2	20.0	5.4
New member with unearned income	0.6	17.0	1.2
Ongoing member obtaining or increasing earnings	13.8	24.7	40.7
Ongoing member obtaining or increasing unearned income	17.1	8.7	17.6
Other	0.6	6.0	0.5
Departure of or from persons without income	5.7	19.7	13.4
ALL EVENTS	37.7	16.9	76.2

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 6,506 observations.

- Note: 1. The overall probability of a closing for nonearner is 8.4 percent.
2. Probability of exit|event: proportion of individuals experiencing the event who exit from the Food Stamp Program within one or two waves. Probability of event|exit: proportion of individuals exiting from the Food Stamp Program who experienced the event one or two waves previously.

baseline, are associated with over 5 percent of exits for individuals in households without earnings.

- Increases in earnings to an ongoing household member occur to 47 percent of individuals in households with earnings, but only to 14 percent of individuals in households without earnings at baseline. This event is associated with 64 percent of exits for households for the former subgroup, and only 41 percent of exits for the latter subgroup.
- Conversely, increases in unearned income are associated with only 9 percent of exits for households with earnings, but with 18 percent of exits for households without earnings.

Thus, an increase in earnings is a relatively more important exit route for households that already have earnings, while an increase in unearned income, and death and institutionalization, are more frequent routes for households that do not have earnings. Furthermore, for every one of the income and household composition-related trigger events, the probability of an exit conditional on the event having occurred is greater for earners than for nonearners.

Occurrences of Trigger Events: Education Subgroups

Exhibits IV.5 and IV.6 show the relative importance of these events for recipients in households containing an able-bodied non-elderly adult who is a high school graduate versus those in households in which the able-bodied non-elderly adults do not have high school diplomas. The differences are generally minor. The largest difference is that household compositional changes account for nearly 20 percent of exits for the high school dropout subgroup, compared with only 10 percent for high school graduates. These two subgroups are much more similar to each other than either is to the excluded subgroup--members of households with no able-bodied adults.

Occurrence of Trigger Events: Demographic Subgroups

Finally, differences among demographic subgroups are shown in Exhibits IV.7 through IV.12. The most striking feature of the table for able-bodied, childless adults (Exhibit IV.7) is the very high conditional probability of exit if a trigger event occurs--11.6 percent.

Exhibit IV.5
OCCURRENCE OF TRIGGER EVENTS FOR CLOSURES:
HIGH SCHOOL GRADUATES

Event	Percent of all recipients with event	<u>Conditional probability of:</u>	
		exit event	event exit
Left the sample	0.4%	100%	2.3%
Died	0.2	100	0.8
Was institutionalized	0.1	100	0.7
Entered armed forces	0.0	100	0.1
Emigrated	0.0	100	0.1
Other	0.1	100	0.6
Household income increased significantly, primarily due to:			
New member with earnings	2.6	42.7	5.7
New member with unearned income	0.8	15.1	0.6
Ongoing member obtaining or increasing earnings	36.8	32.4	62.0
Ongoing member obtaining or increasing unearned income	12.4	16.2	10.4
Other	0.9	11.0	0.5
Departure of or from persons without income	9.5	22.2	10.9
ALL EVENTS	58.1	27.9	84.5

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 6,058 observations

- Note: 1. The overall probability of a closing for high school graduates is 19.2 percent.
2. Probability of exit|event: proportion of individuals experiencing the event who exit from the Food Stamp Program within one or two waves. Probability of event|exit: proportion of individuals exiting from the Food Stamp Program who experienced the event one or two waves previously.

Exhibit IV.6
OCCURRENCE OF TRIGGER EVENTS FOR CLOSURES:
HIGH SCHOOL DROPOUTS

Event	Percent of all recipients with event	Conditional probability of:	
		exit event	event exit
Left the sample	0.5%	100%	4.4%
Died	0.1	100	1.2
Was institutionalized	0.0	100	0.3
Entered armed forces	0.0	100	0.2
Emigrated	0.0	100	0.2
Other	0.3	100	2.4
Household income increased significantly, primarily due to:			
New member with earnings	2.8	14.8	3.8
New member with unearned income	0.6	25.5	1.4
Ongoing member obtaining or increasing earnings	28.3	22.3	58.0
Ongoing member obtaining or increasing unearned income	14.9	7.6	10.4
Other	0.8	11.4	0.8
Departure of or from persons without income	9.7	21.5	19.2
ALL EVENTS	51.4	16.9	79.9

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 4,667 observations.

- Note: 1. The overall probability of a closing for high school dropouts is 10.9 percent.
2. Probability of exit|event: proportion of individuals experiencing the event who exit from the Food Stamp Program within one or two waves. Probability of event|exit: proportion of individuals exiting from the Food Stamp Program who experienced the event one or two waves previously.

Exhibit IV.7
OCCURRENCE OF TRIGGER EVENTS FOR CLOSURES:
ABLE-BODIED, CHILDLESS ADULTS

Event	Percent of all recipients with event	<u>Conditional probability of:</u>	
		exit event	event exit
Left the sample	1.1%	100%	4.5%
Died	0.3	100	1.4
Was institutionalized	0.2	100	0.9
Entered armed forces	--	--	--
Emigrated	--	--	--
Other	0.5	100	2.3
Household income increased significantly, primarily due to:			
New member with earnings	3.0	28.3	6.7
New member with unearned income	3.0	19.0	3.6
Ongoing member obtaining or increasing earnings	32.1	28.6	61.8
Ongoing member obtaining or increasing unearned income	12.4	12.7	10.3
Other	0.4	11.1	0.8
Departure of or from persons without income	4.0	21.8	7.8
ALL EVENTS	52.0	23.7	85.1

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 614 observations

- Note: 1. The overall probability of a closing for able-bodied, childless adults is 23.3 percent.
2. Probability of exit|event: proportion of individuals experiencing the event who exit from the Food Stamp Program within one or two waves. Probability of event|exit: proportion of individuals exiting from the Food Stamp Program who experienced the event one or two waves previously.

Exhibit IV.8
OCCURRENCE OF TRIGGER EVENTS FOR CLOSURES:
AGED AND DISABLED

Event	Percent of all recipients with event	Conditional probability of:	
		exit event	event exit
Left the sample	3.1 %	100 %	26.4 %
Died	1.3	100	11.3
Was institutionalized	0.4	100	3.0
Entered armed forces	--	--	--
Emigrated	--	--	--
Other	1.4	100	12.1
Household income increased significantly, primarily due to:			
New member with earnings	0.9	16.4	1.3
New member with unearned income	0.7	28.2	1.8
Ongoing member obtaining or increasing earnings	6.3	25.4	13.7
Ongoing member obtaining or increasing unearned income	11.2	24.9	23.7
Other	0.5	0.0	0.0
Departure of or from persons without income	0.8	27.1	1.9
ALL EVENTS	22.8	33.2	64.6

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 1,509 observations

- Note: 1. The overall probability of a closing for aged and disabled childless adults is 11.7 percent.
2. Probability of exit|event: proportion of individuals experiencing the event who exit from the Food Stamp Program within one or two waves. Probability of event|exit: proportion of individuals exiting from the Food Stamp Program who experienced the event one or two waves previously.

For the aged and disabled (Exhibit IV.8), only 65 percent of exits can be associated with a trigger event--26 percent with death, institutionalization, and related events. Furthermore, only about 14 percent of exits are associated with increases in earnings to ongoing household members, but nearly a quarter to increases in unearned income. The corresponding percentages for the recipient population as a whole, it will be recalled, are 57 percent and 11 percent.

The patterns for both children living with a single adult, and single adults living with children, are fairly similar to those for the population as a whole in the relative importance of the various exit routes (Exhibits IV.9 and IV.11). The trigger events are, however, less frequent for these subgroups than for the population as a whole, especially increases in earnings. Also, the conditional probabilities of exit are generally smaller. Little over 40 percent of these individuals experience a trigger event, and less than 20 percent of those that do so then exit the program. A unique feature for these subgroups is that new earners joining the household constitute a significant route for exiting the Food Stamp Program, occurring along with 12 percent of closures. This event is associated with only 5 percent of closures for recipients in general.

Children living with multiple adults and multiple adults living with children (Exhibits IV.10 and IV.12) can likewise be considered jointly. These individuals have over a 60 percent chance of experiencing a trigger event; increases in earnings to ongoing members are especially likely, occurring to over 40 percent of recipients.

Recidivism

To complete our analysis of Food Stamp Program exits, we examine the recidivism rate, or the proportion of recipients who return to the program within some time after leaving it. Information on these rates is presented in Exhibit IV.13.

For the recipient population as a whole, nearly 12 percent reportedly return to the program within 4 months. The rates for 8, 12, and 16 months are 30 percent, 38 percent, and

Exhibit IV.9
OCCURRENCE OF TRIGGER EVENTS FOR CLOSURES:
ONE ADULT WITH CHILDREN

Event	Percent of all recipients with event	Conditional probability of:	
		exit event	event exit
Left the sample	0.1 %	100 %	1.3 %
Died	--	--	--
Was institutionalized	--	--	--
Entered armed forces	--	--	--
Emigrated	--	--	--
Other	0.1	100	1.3
Household income increased significantly, primarily due to:			
New member with earnings	3.5	31.0	11.6
New member with unearned income	0.7	18.9	1.4
Ongoing member obtaining or increasing earnings	21.1	25.2	56.4
Ongoing member obtaining or increasing unearned income	13.2	7.8	10.9
Other	0.5	16.0	0.9
Departure of or from persons without income	3.7	15.7	6.2
ALL EVENTS	40.8	19.0	82.3

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 1,305 observations.

- Note: 1. The overall probability of a closing for one adult with children is 9.4 percent.
2. Probability of exit|event: proportion of individuals experiencing the event who exit from the Food Stamp Program within one or two waves. Probability of event|exit: proportion of individuals exiting from the Food Stamp Program who experienced the event one or two waves previously.

Exhibit IV.10

**OCCURRENCE OF TRIGGER EVENTS FOR CLOSURES:
MULTIPLE ADULTS WITH CHILDREN**

Event	Percent of all recipients with event	<u>Conditional probability of:</u>	
		exit event	event exit
Left the sample	0.5 %	100 %	2.4 %
Died	0.1	100	0.5
Was institutionalized	0.1	100	0.7
Entered armed forces	0.1	100	0.2
Emigrated	0.1	100	0.4
Other	0.1	100	0.6
Household income increased significantly, primarily due to:			
New member with earnings	2.4	32.0	3.7
New member with unearned income	0.5	17.0	0.4
Ongoing member obtaining or increasing earnings	42.3	30.5	63.5
Ongoing member obtaining or increasing unearned income	12.6	15.3	9.5
Other	0.6	18.2	0.5
Departure of or from persons without income	15.3	26.6	20.0
ALL EVENTS	65.2	26.3	84.5

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 2,698 observations.

- Note: 1. The overall probability of a closing for multiple adults with children is 20.3 percent.
2. Probability of exit|event: proportion of individuals experiencing the event who exit from the Food Stamp Program within one or two waves. Probability of event|exit: proportion of individuals exiting from the Food Stamp Program who experienced the event one or two waves previously.

Exhibit IV.11
OCCURRENCE OF TRIGGER EVENTS FOR CLOSURES:
CHILDREN WITH ONE ADULT

Event	Percent of all recipients with event	Conditional probability of:	
		exit event	event exit
Left the sample	0.5 %	100 %	5.1 %
Died	0.0	100	0.4
Was institutionalized	0.1	100	1.0
Entered armed forces	0.1	100	0.5
Emigrated	--	--	--
Other	0.3	100	3.2
Household income increased significantly, primarily due to:			
New member with earnings	3.8	27.7	11.6
New member with unearned income	0.5	20.8	1.2
Ongoing member obtaining or increasing earnings	19.7	24.4	52.4
Ongoing member obtaining or increasing unearned income	15.2	6.5	10.8
Other	0.7	8.5	0.7
Departure of or from persons without income	4.6	24.5	12.3
ALL EVENTS	42.3	17.8	82.2

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 2,813 observations.

- Note: 1. The overall probability of a closing for the children with one adult is 14.9 percent.
2. Probability of exit|event: proportion of individuals experiencing the event who exit from the Food Stamp Program within one or two waves. Probability of event|exit: proportion of individuals exiting from the Food Stamp Program who experienced the event one or two waves previously.

Exhibit IV.12

OCURRENCE OF TRIGGER EVENTS FOR CLOSURES:
CHILDREN WITH MULTIPLE ADULTS

Event	Percent of all recipients with event	Conditional probability of:	
		exit event	event exit
Left the sample	0.1%	100%	0.6%
Died	0.0	100	0.2
Was institutionalized	0.1	100	0.4
Entered armed forces	--	--	--
Emigrated	--	--	--
Other	--	--	--
Household income increased significantly, primarily due to:			
New member with earnings	1.9	17.2	2.1
New member with unearned income	0.5	0.0	0.0
Ongoing member obtaining or increasing earnings	40.5	26.5	66.4
Ongoing member obtaining or increasing unearned income	12.8	10.6	8.5
Other	1.1	5.6	0.4
Departure of or from persons without income	13.3	14.2	11.7
ALL EVENTS	62.6	20.9	81.1

Source: 1984 SIPP Panel (June 1983 to June 1986).

Unweighted sample size: 3,166 observations.

- Note: 1. The overall probability of a closing for children with multiple adults is 16.1 percent.
2. Probability of exit|event: proportion of individuals experiencing the event who exit from the Food Stamp Program within one or two waves. Probability of event|exit: proportion of individuals exiting from the Food Stamp Program who experienced the event one or two waves previously.

Exhibit IV.13

RECIDIVISM

	Proportion of recipients who exited that return within:			
	4 months	8 months	12 months	16 months
Earners	12.0%	29.2%	36.4%	42.9%
Nonearners	10.0	33.8	44.5	48.1
High school graduates	9.7	28.1	35.6	42.2
High school dropouts	16.0	37.0	46.9	51.9
Able-bodied, childless	7.8	23.6	32.1	37.7
Aged and disabled	5.0	19.8	21.7	26.0
One adult with children	16.2	34.4	41.0	43.2
Multiple adults with children	12.4	29.5	37.2	44.1
Children with one adult	14.5	39.9	49.9	53.3
Children with more than one adult	11.7	31.4	39.2	46.2
ALL INDIVIDUALS	11.6%	30.3%	38.3%	44.2%
(Unweighted sample size)	(2,832)	(2,487)	(2,083)	(1,625)

Source: 1984 SIPP Panel (June 1983 to June 1986).

Note: For definitions of population subgroups, see Exhibit II.1. High school graduate and dropout subgroups do not sum to 100 percent of the population because individuals in households containing only elderly or disabled adults are excluded.

44 percent, respectively. It appears that the recidivism rate would be still higher for periods of two years or more.¹

The elderly and disabled show markedly lower recidivism rates than the recipient population as a whole. The highest recidivism rates are seen among households headed by high school dropouts, and children living with one adult.²

Summary

This chapter has presented a variety of information concerning the circumstances surrounding exits from the Food Stamp Program for the population as a whole and for ten recipient subgroups. Exhibit IV.14 summarizes the patterns by showing the proportion of closings for each subgroup that can be associated with each major potential trigger event. Some of the key findings are that:

¹These rates may overstate true recidivism. It has been suggested that some gaps in reported receipt are due to alternative household members responding from one interview to another. Thus, the husband may report food stamp receipt in Wave 2, the wife may report no receipt in Wave 3, and the husband may report receipt again in Wave 4, even though the actual reciprocity status has not changed.

²Burstein and Visser (1989) estimated six-month recidivism rates based on a nationally representative administrative data base covering the time period October 1980 through December 1983. Although they did not present a value for the overall population, a rate can be roughly calculated from their Table 3.16, p.60. This rate is 26.6 percent. This is somewhat higher than the average of the four- and eight-month rates presented above for the entire population, 21.0 percent.

The subgroups for which Burstein and Visser calculated recidivism rates mostly do not correspond to the subgroups shown in Exhibit IV.13. Some of the demographic groups can, however, be compared. The patterns of results relative to the food stamp population as a whole are fairly similar. As in the current report, Burstein and Visser found higher than average recidivism rates for one-adult households with children. They found even higher recidivism rates for households containing multiple adults and children, however, while the current report finds that these households have recidivism rates close to the overall mean. The two analyses do agree in finding quite low recidivism rates for the elderly and disabled--17.7 percent at six months in Burstein and Visser, and 12.4 percent as the average of the four- and eight-month rates in the current report. These rates are only 60 to 70 percent of the corresponding estimates of the rates for all food stamp recipients. Finally, both analyses find lower than average recidivism rates for able-bodied childless individuals (identified in Burstein and Visser as non-elderly GA and NPA recipients living alone or in couples).

Exhibit IV.14

DISTRIBUTION OF TRIGGER EVENTS FOR CLOSINGS: ALL SUBGROUPS

Subgroup	Death, institutional- ization, etc.	<u>New member:</u>		<u>Ongoing member:</u>		Departure of or from persons without income	All events
		with earnings	with unearned income	increasing earnings	increasing unearned income		
Earners	1.7	4.7	0.7	63.8	8.5	12.7	83.4
Nonearners	11.2	5.4	1.2	40.7	17.6	13.4	76.2
High school graduates	2.3	5.7	0.6	62.0	10.4	10.9	84.5
High school dropouts	4.4	3.8	1.4	58.0	10.4	19.2	79.9
Able-bodied, childless	4.5	6.7	3.6	61.8	10.3	7.8	85.1
Aged and disabled, childless	26.4	1.3	1.8	13.7	23.7	1.9	64.6
One adult living with children	1.3	11.6	1.4	56.4	10.9	6.2	82.3
Multiple adults living with children	2.4	3.7	0.4	63.5	9.5	20.0	84.5
Children living with one adult	5.1	11.6	1.2	52.4	10.8	12.3	82.2
Children living with multiple adults	0.6	2.1	0.0	66.4	8.5	11.7	81.1
ALL INDIVIDUALS	4.4	4.9	0.9	57.0	11.2	12.9	81.3

Source: 1984 SIPP Panel (June 1983 to June 1986).

Note: The percentages in this table represent the proportion of all food stamp closings that are associated with each event.

- The single most important exit route is an increase in earnings to an ongoing household member;
- Death and institutionalization cause only a small percentage of closures, but these are (naturally) heavily concentrated among the elderly and disabled;
- Some other exit routes are of special importance for certain subgroups. These include changes in household composition for high school dropouts, and the acquisition of an additional adult with earnings for one-adult households with children.

Food stamp closures among recipients are much less rare than food stamp openings among non-recipients. Predicting closure therefore has a better chance of success. In fact, nearly a quarter of current recipients who experience a trigger event exit the Food Stamp Program within the next 4 to 8 months. In contrast, only 3 percent of non-recipients with household income under three times the poverty threshold who experience a trigger event begin to receive food stamps within the next 4 to 8 months.

These results confirm the common-sense notion that it is hard to exit from the Food Stamp Program without an increase in household earnings. Furthermore, only for recipients living in single-parent households is an external source of the increase in earnings (i.e., a new spouse) an important trigger event for a case closure. Yet an increase in earnings is by no means either absolutely necessary or sufficient for a closure. Households could drop out of the Food Stamp Program for reasons that a general-purpose survey such as SIPP could never detect --for example, a change in local office procedures, a family emergency that made a recipient miss a recertification interview, a change in the bus route that makes the local office harder to reach, or an unpleasant experience using food stamps. Households that leave the Food Stamp Program without an increase in earnings are almost sure to still be eligible, however, and thus will have not achieved financial independence and security. They may therefore return to the program relatively soon.

The SIPP data indicate that nearly 40 percent of all individuals who exit the Food Stamp Program return within a year. Higher recidivism rates are seen among children living with a single adult, high school dropouts, and those who do not have earnings at the time that they leave. Lower rates are seen among the aged and disabled, and able-bodied, childless individuals.

CHAPTER FIVE
PATTERNS OF FOOD STAMP RECEIPT

The three preceding chapters have presented findings on the circumstances surrounding food stamp spell beginnings, on the duration of food stamp spells, on the circumstances surrounding food stamp exits, and on the rate of return to the Food Stamp Program. In this

All Recipients

Exhibit V.1 graphically presents the dynamics of food stamp receipt for the population as a whole in four bar charts. The first chart, entitled "Events Surrounding Openings," shows the relative frequency of the various trigger events for entrances into the Food Stamp Program. It can be seen that over 70 percent of individuals beginning a food stamp spell have experienced an income drop of \$400 from one four month period to the next—generally a loss of earnings to an ongoing household member. Ten percent have acquired a new infant, and 8 percent have acquired another new household member without income. (These events may overlap with income losses.) Another 5 percent have just begun receipt of cash assistance, but had not experienced any of the previously mentioned events. Just under 20 percent of the individuals beginning to receive food stamps did not experience any of the measured events.

Having begun to receive food stamps, over 40 percent of individuals exit the program within four months or less, and over 80 percent exit within two years. As shown in the second chart in Exhibit V.1, entitled "Length of Food Stamp Spell," the estimated mean spell is 22 months, while the median is six months.

The third chart, entitled "Events Surrounding Closings," shows that 57 percent of exits are accompanied by a gain in earnings to an ongoing household member, 11 percent by a gain in unearned income, and 6 percent by the arrival of a new household member with income. Thirteen percent of exits occur in conjunction with the departure of, or a separation from, a person without income. (These events may occur at the same time as an income gain—for example, a person may move from a household which contains several people with no income to a household which contains an earner.) Another 5 percent of exits result from the death or institutionalization of the individual. Finally, as shown in the fourth chart, entitled "Reopenings," 12 percent of individuals who leave the program return within 4 months, and 38 percent do so within a year.

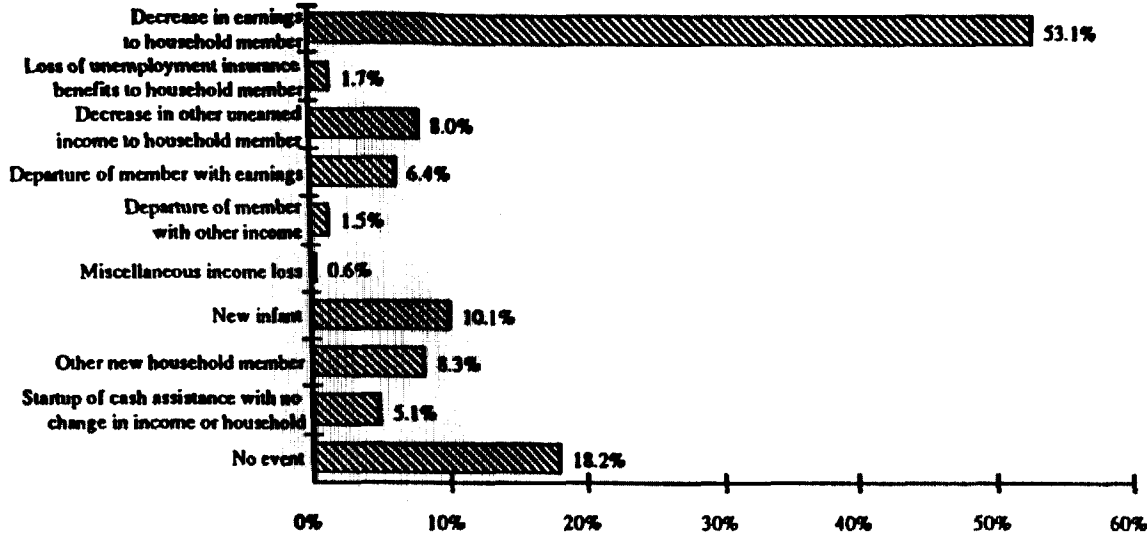
Earners vs. Nonearners

Individuals whose households contain earners in one period may be in nonearner households in another. Exhibit V.2 highlights the differences between earners and nonearners,

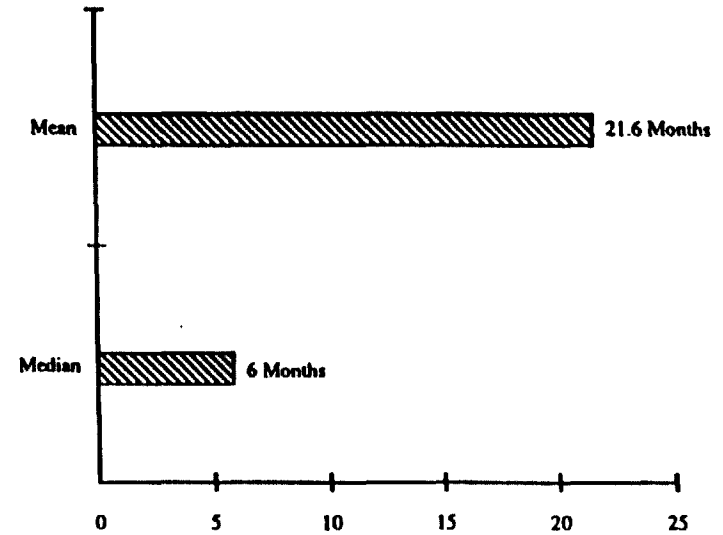
Exhibit V.1

PATTERNS OF FOOD STAMP PARTICIPATION: ALL INDIVIDUALS

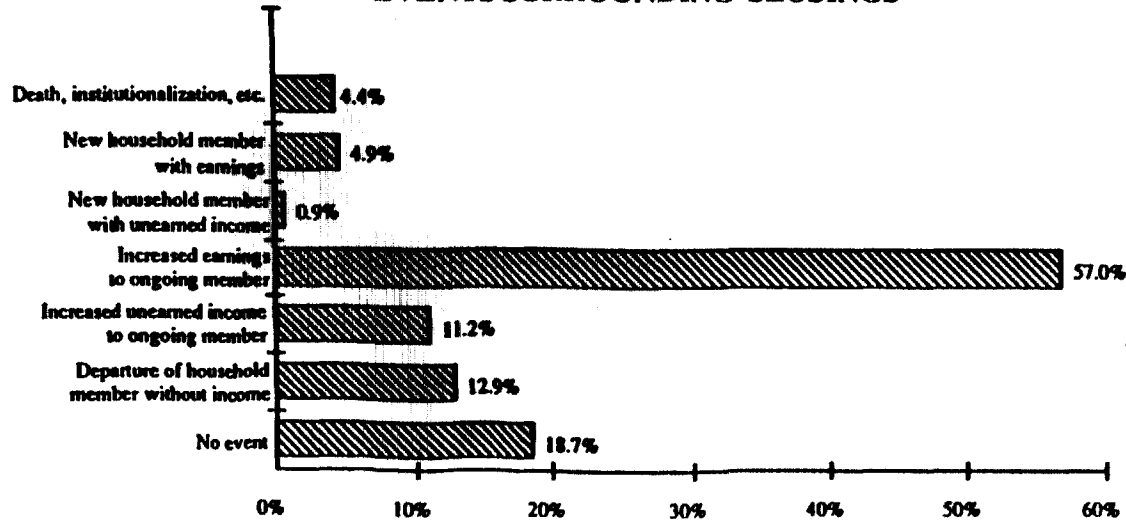
EVENTS SURROUNDING OPENINGS



LENGTH OF FOOD STAMP SPELL



EVENTS SURROUNDING CLOSINGS



REOPENINGS

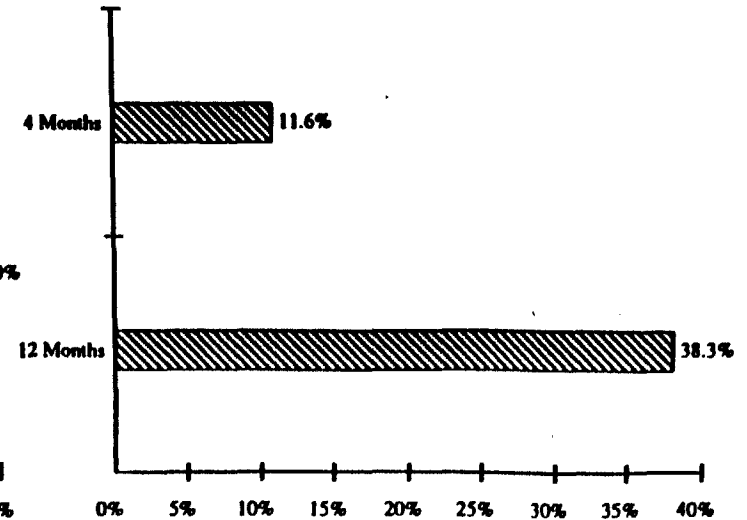
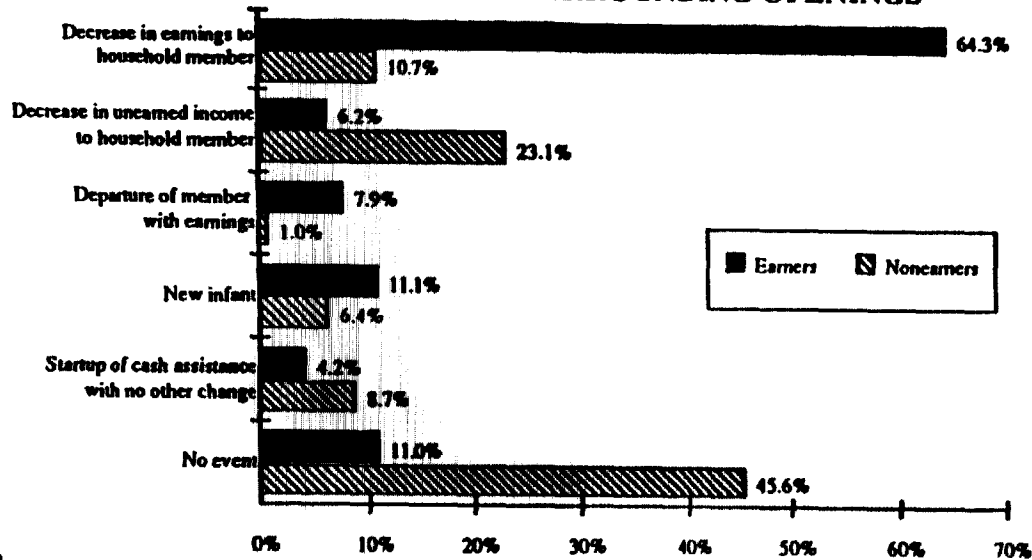


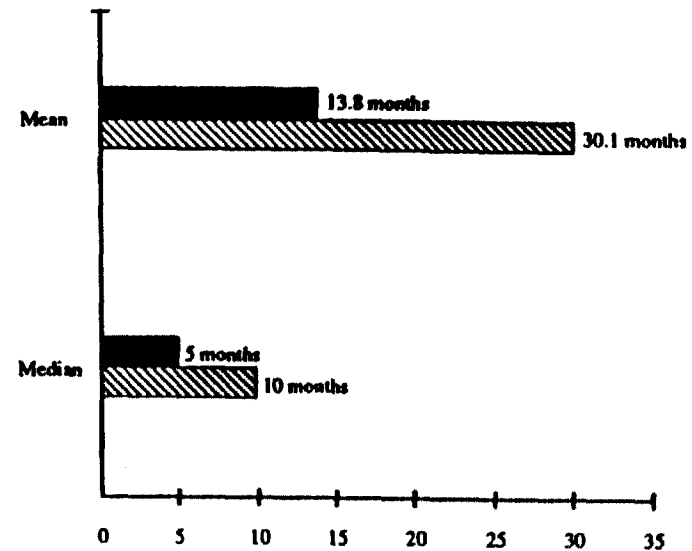
Exhibit V.2

PATTERNS OF FOOD STAMP PARTICIPATION FOR EARNERS AND NONEARNERS

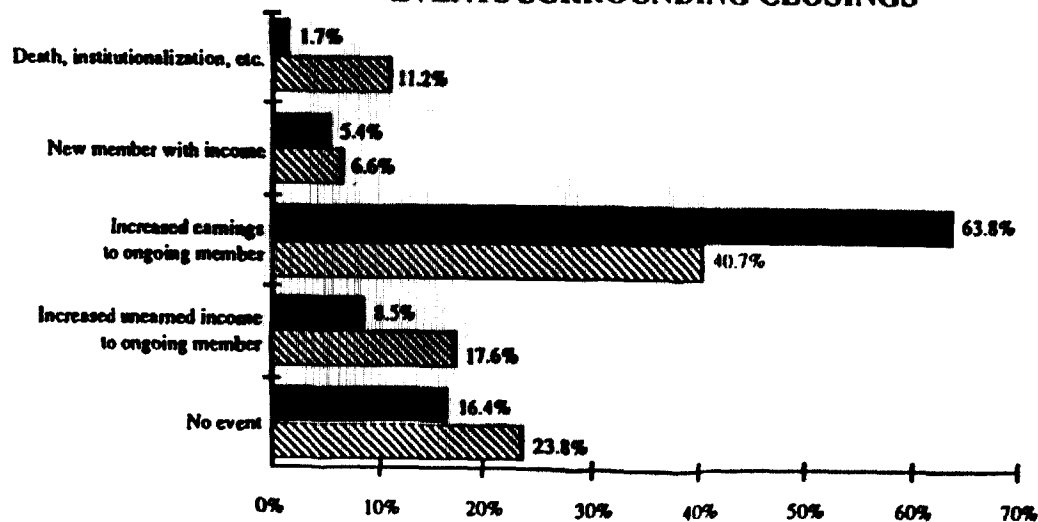
EVENTS SURROUNDING OPENINGS



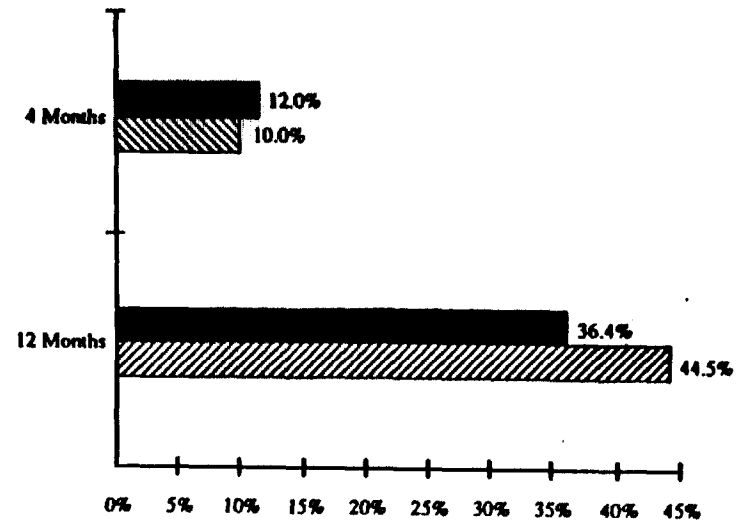
LENGTH OF FOOD STAMP SPELL



EVENTS SURROUNDING CLOSINGS



REOPENINGS



using the same format as Exhibit V.1. In the interest of clarity, several sets of bars have been omitted from all charts which present subgroup-level trigger events for openings and closings. The omitted bars correspond to events of minor importance which did not show much variation between the subgroups being examined.

The primary trigger events for openings for members of earner households are decreases in earnings to household members and acquisition of a new infant. Individuals in households that still have earnings at the time a spell begins have relatively short spells; the mean duration is 14 months and the median is only 5 months. Households with earnings leave the Food Stamp Program primarily through an increase in earnings, and their recidivism rate is lower than average.

For nonearner households, in contrast, the primary trigger events for openings are losses of unearned income, losses of earnings, and startup of cash assistance. Furthermore, no trigger event occurred for nearly half of the openings for nonearners. Spell duration is longer for nonearners than for earners: the mean and median spell lengths are 30 and 10 months, respectively.

The primary exit route for nonearners, as for most subgroups, is an increase in earnings; but other important exit routes are increases in unearned income, and death and institutionalization. Conditional on a trigger event occurring, members of nonearner households are only about 60 percent as likely to exit the program as members of earned households. Recidivism rates are also somewhat higher than for earners.

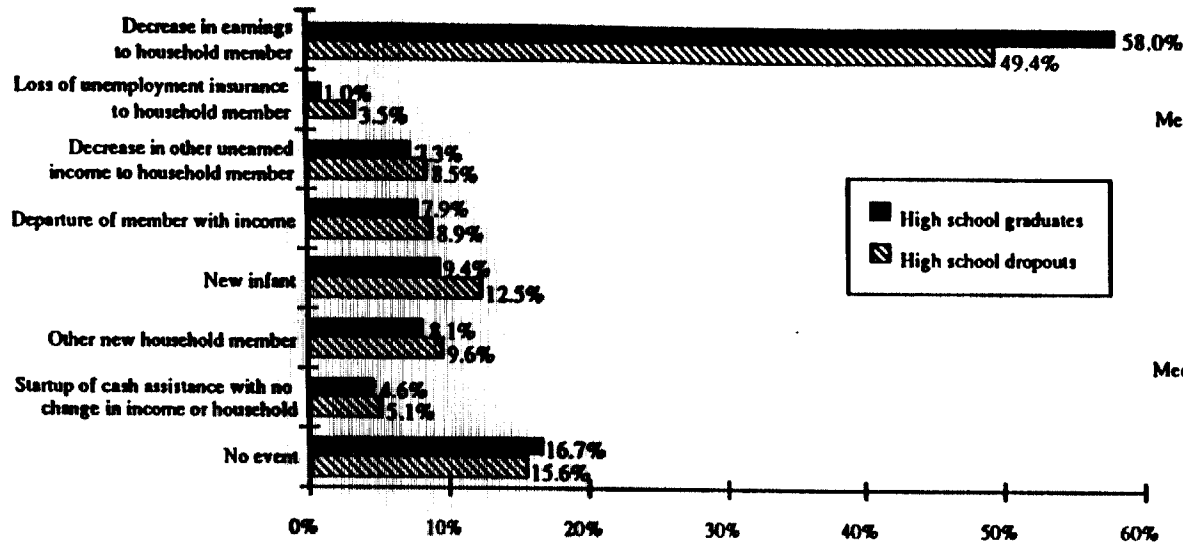
Education Subgroups

Differences can be seen between households which contain an able-bodied, non-elderly high school graduate and those in which the only able-bodied non-elderly adults are high school dropouts. As shown in Exhibit V.3, entries of high school graduates are primarily due to losses in earned income. Spells are a little shorter than average, with mean duration of 17 months, and exits are primarily due to increased earnings. Recidivism is about average. In short, this subgroup does not look very different from the general population.

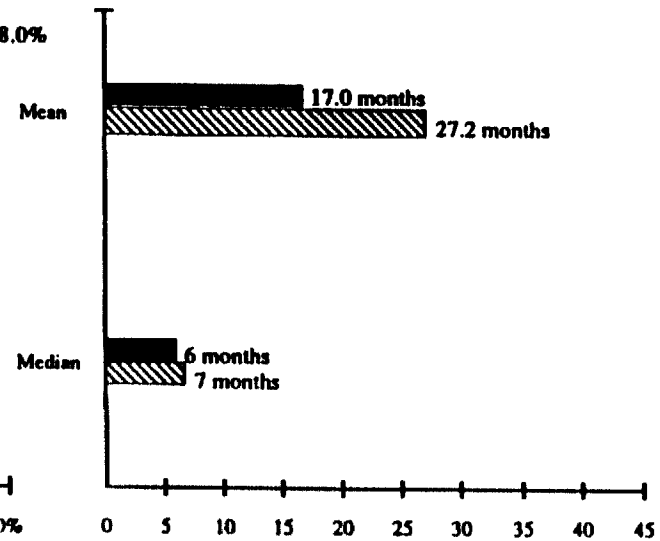
Exhibit V.3

PATTERNS OF FOOD STAMP PARTICIPATION BY EDUCATION

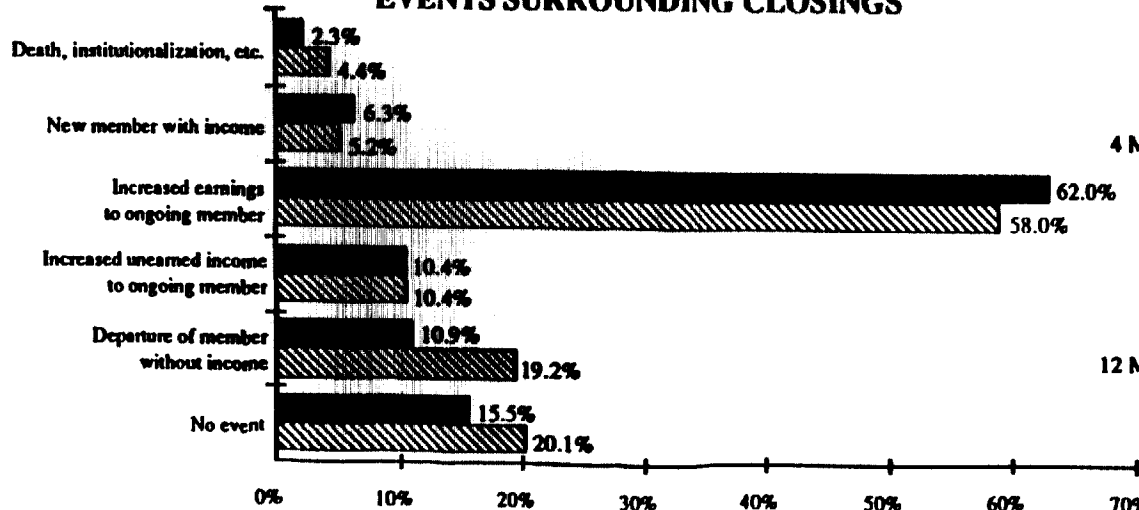
EVENTS SURROUNDING OPENINGS



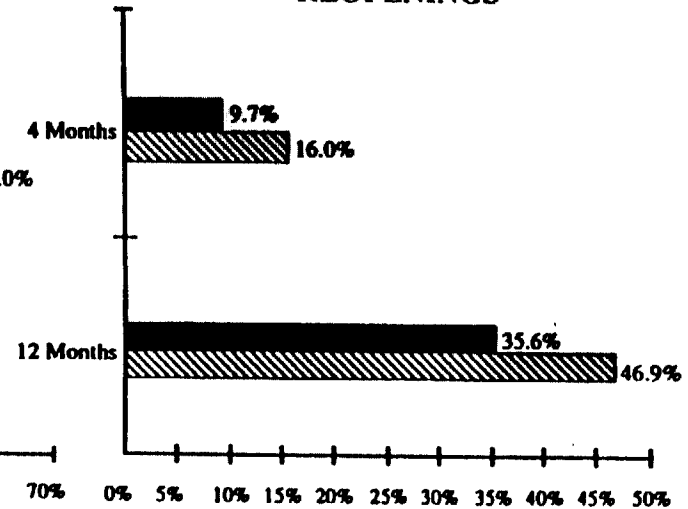
LENGTH OF FOOD STAMP SPELL



EVENTS SURROUNDING CLOSINGS



REOPENINGS



For high school dropouts, while loss of earnings is still the most common trigger event for an opening, additions of new babies and other household members are more common than for the rest of the population. Spell lengths for this subgroup are somewhat longer than for the rest of the population (the mean duration is 27 months). Significant reasons for closings include not only increased earnings to current members, but also the departure of (or separation from) household members without income of their own. Recidivism for this subgroup is somewhat higher than average.

Demographic Subgroups

Substantial variations are also seen among the demographic subgroups. Exhibit V.4 summarizes patterns for the two types of individuals in childless households--namely, the able-bodied, and the aged and disabled.

For able-bodied, childless adults, food stamp openings occur largely in conjunction with decreases in earnings. Yet they are much less likely to open, given a trigger event, than the population as a whole. Food stamp stays are short, averaging less than 14 months and half of them ending with 5 months. Exits are primarily due to increases in earnings; and the probability of a closure conditional on a trigger event is 60 percent greater than for the general recipient population. Thus, this subgroup seems to be quite resilient--unlikely to begin a spell, and readily exiting. Recidivism is also somewhat lower than for the population as a whole.

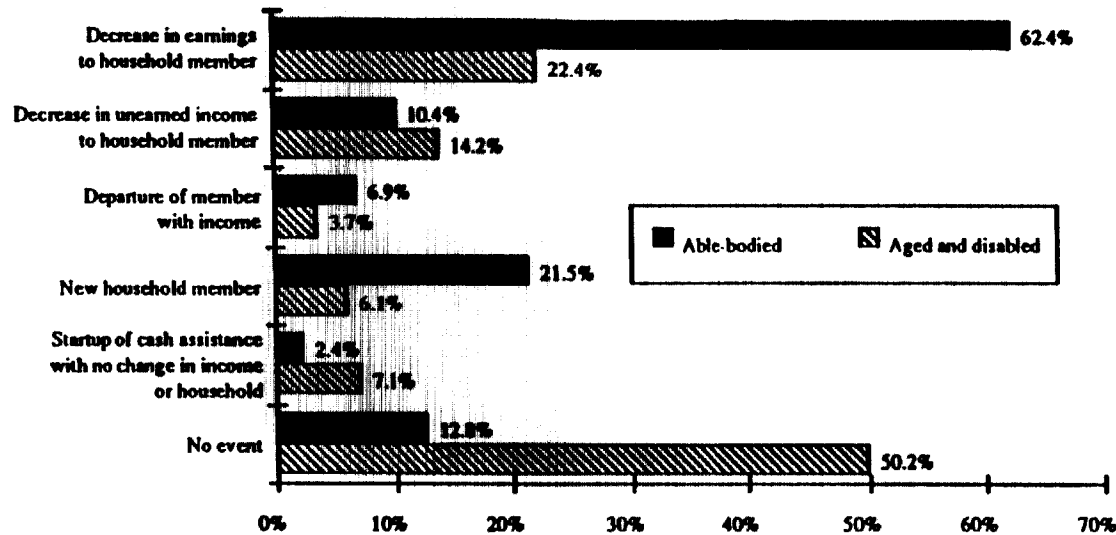
The elderly and disabled form an interesting contrast. Their probability of an opening conditional on a trigger event is even lower than for the able-bodied individuals; and trigger events rarely happen, as well. When they do occur, losses of unearned income and startup of cash assistance are more important than for the general population. On the other hand, more than half of all openings for this subgroup cannot be associated with any of the identified trigger events.

The aged and disabled receive food stamps for about 50 percent longer than the general recipient population. Their median spell length is 8 months. Over a quarter of all exits are due to death or institutionalization, and another quarter are associated with a gain in unearned income. Other trigger events occur rarely, so that many exits are not explained. Once off the

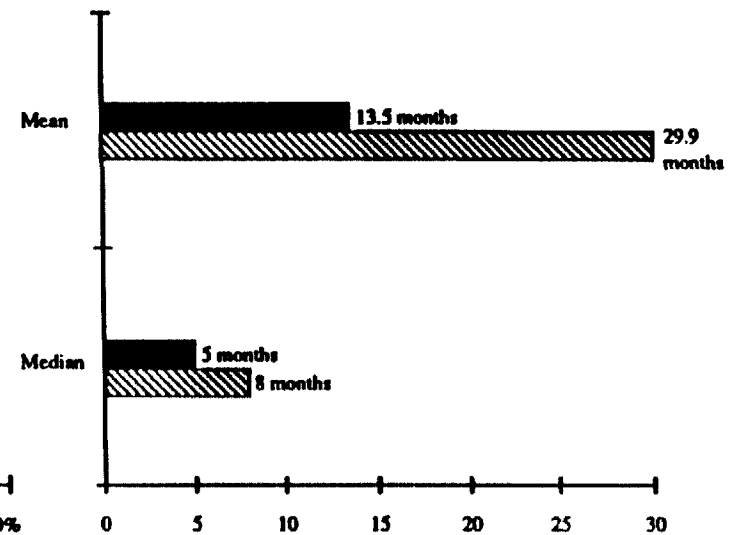
Exhibit V.4

PATTERNS OF FOOD STAMP PARTICIPATION FOR MEMBERS OF CHILDLESS HOUSEHOLDS

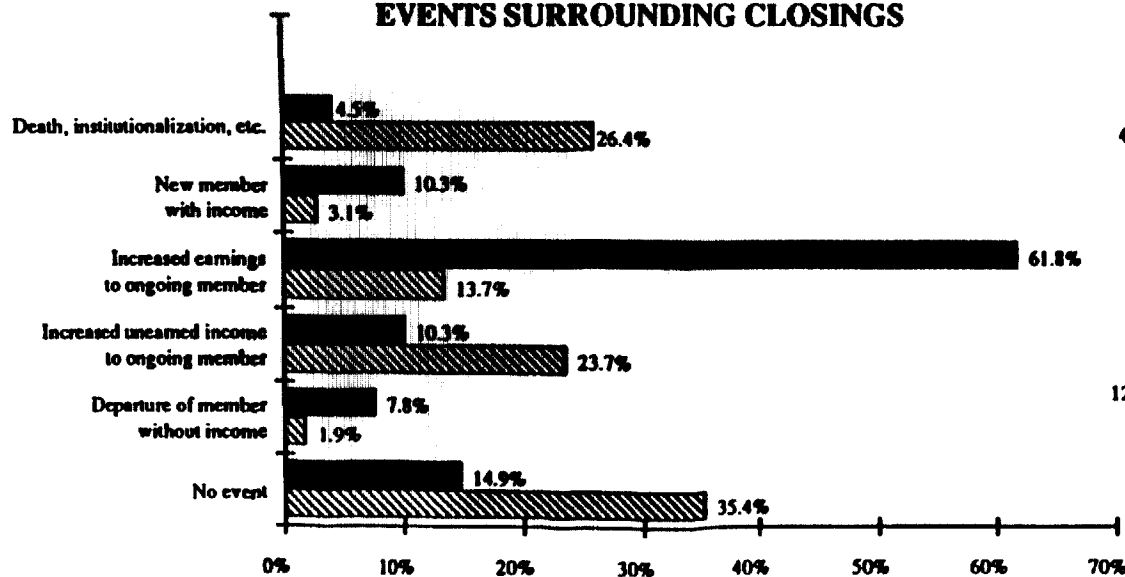
EVENTS SURROUNDING OPENINGS



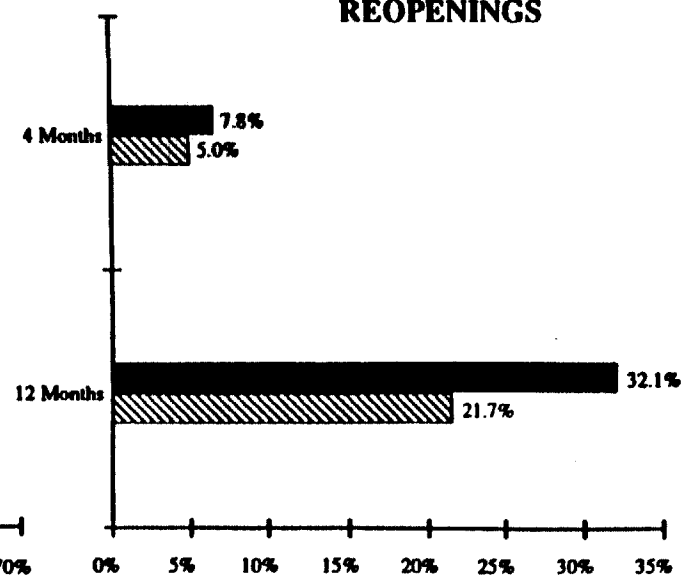
LENGTH OF FOOD STAMP SPELL



EVENTS SURROUNDING CLOSINGS



REOPENINGS



Food Stamp Program, recidivism occurs at little more than half the rate for the general population. This cannot be attributed to the permanent nature of many of the food stamp closings, because subgroups for measuring recidivism are defined as of the first month in which food stamps were not received. Those who died and were institutionalized are not included, because they never entered the nonrecipient population. The low recidivism rate is therefore a reflection of the great inertia of this group, also evident in the low program entry and exit rates.

Exhibit V.5 shows the patterns for able-bodied childless adults again, this time contrasted with single adults living with children. Single adults with children are three times as likely to begin to receive food stamps than able-bodied adults without children in a given four-month period. Furthermore, single adults with children are less likely to have lost income or a household member with income just before the spell of food stamp receipt began, and more likely to have just begun to receive cash assistance. Once they begin to receive food stamps, their average spell length is almost three times as long as for able-bodied, childless adults. The patterns of events surrounding closure are similar for these two subgroups; but the single parents are substantially more likely to reopen within a year.

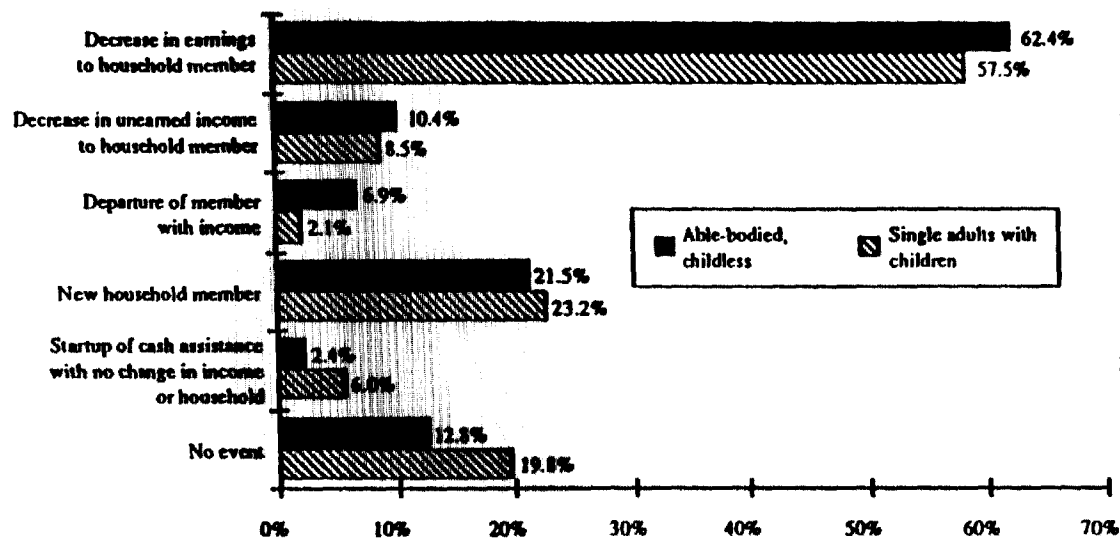
Finally, Exhibit V.6 contrasts the patterns for children living with one adult and children living with multiple adults. For children living with one adult, the probability of an opening conditional on a trigger event is substantially higher than for the population as a whole. The acquisition of a new infant or other household member without income is a relatively important trigger event (although loss of income, for this subgroup as for all others, is substantially more frequent). Mean duration of receipt is over three years, while the median duration is a year. Although most exits occur in association with increases in earnings to ongoing household members, a unique feature for these children is that a substantial number of exits occur in conjunction with the acquisition of new members with earnings. Recidivism is high. These individuals are clearly heavily dependent on food stamps.

Children living with multiple adults, on the other hand, show patterns similar to those for the population as a whole. Thus, openings occur largely due to earnings losses, although the probability of this and most other trigger events is higher than for other subgroups. Once receiving food stamps, the mean duration is only 20 months, less than the overall population

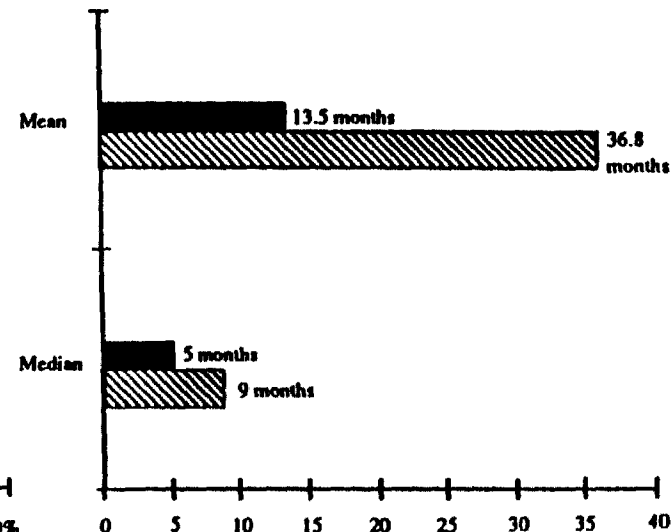
Exhibit V.5

PATTERNS OF FOOD STAMP PARTICIPATION FOR ADULTS WITH AND WITHOUT CHILDREN

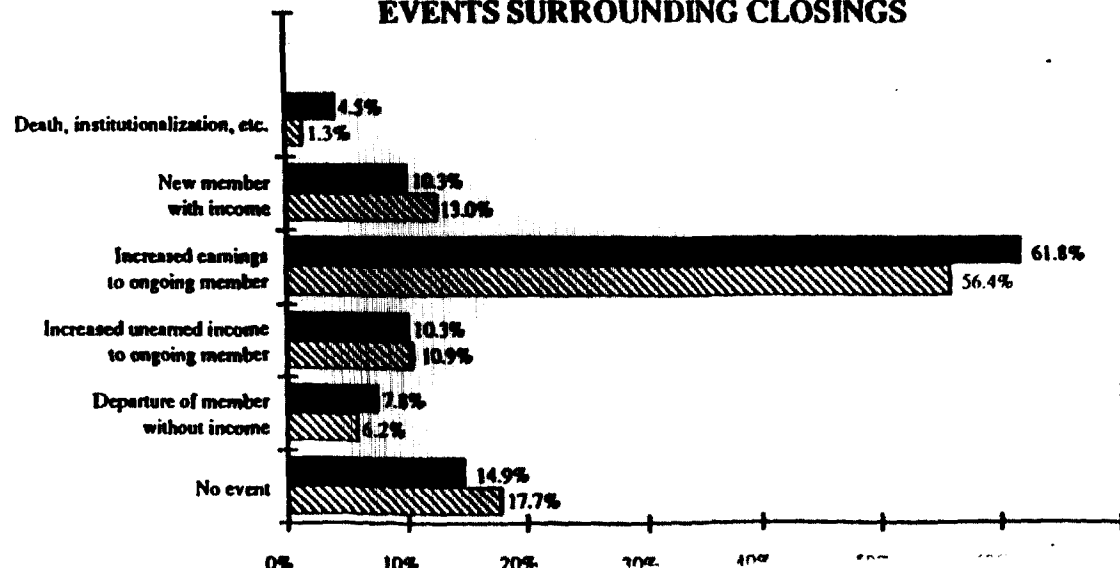
EVENTS SURROUNDING OPENINGS



LENGTH OF FOOD STAMP SPELL



EVENTS SURROUNDING CLOSINGS



REOPENINGS

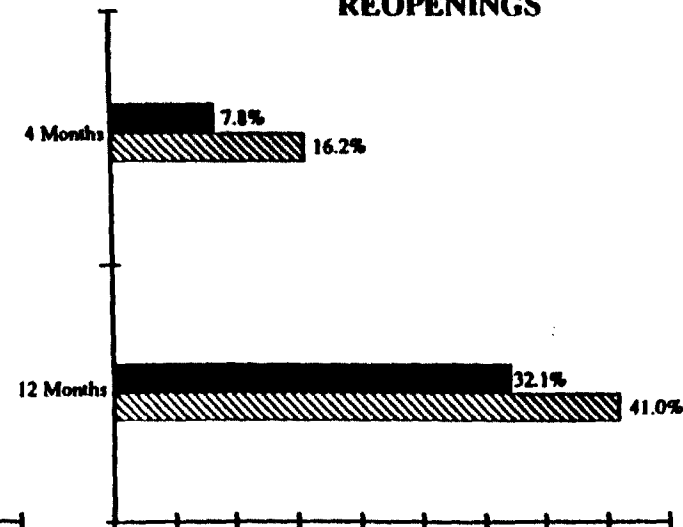
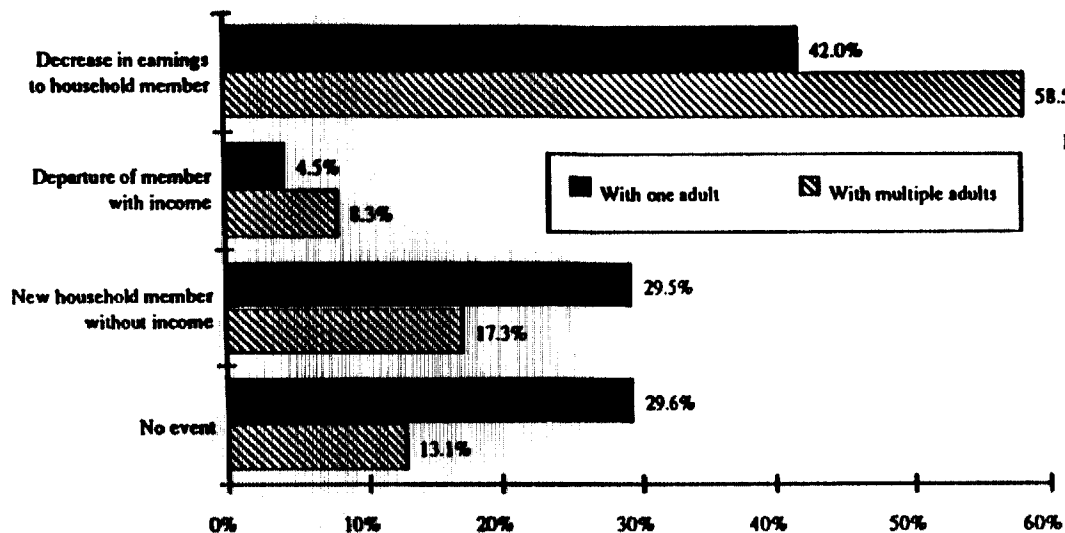


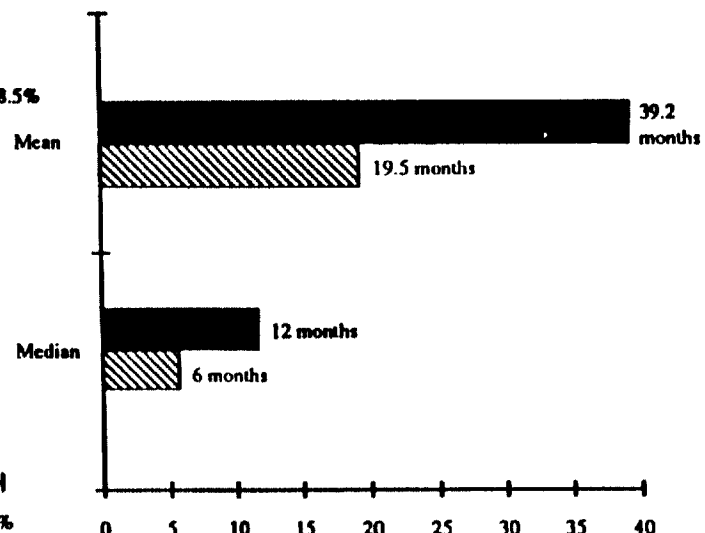
Exhibit V.6

PATTERNS OF FOOD STAMP PARTICIPATION FOR CHILDREN

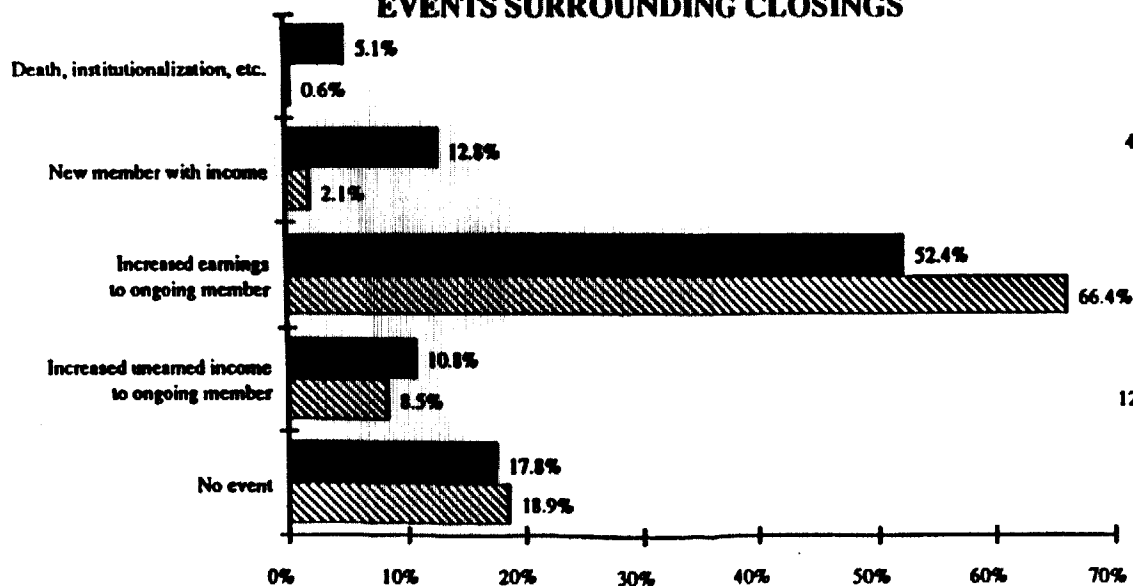
EVENTS SURROUNDING OPENINGS



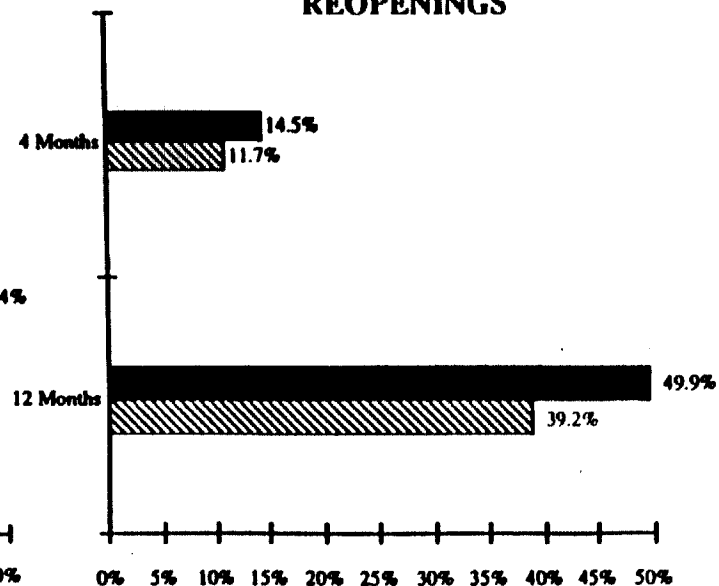
LENGTH OF FOOD STAMP SPELL



EVENTS SURROUNDING CLOSINGS



REOPENINGS



mean of 22 months. Exit patterns and recidivism rates are about average for the recipient population. The addition of a second adult to a household with children approximately halves the probability of an opening and the expected length of spell once it begins, and also reduces the recidivism rate by a fifth.

Summary

The salient characteristics of an individual are likely to change during the cycle of food stamp reciprocity: many of the events that are associated with entering or leaving the program pertain to presence of earners in the household and household composition. At each point in the cycle, however, greater dependency is associated with lack of earned income, lack of a high school diploma, and single parenthood.

In particular,

- Earned income is a dominant factor in participation. A change in a household member's earnings is the most common event associated with entering and leaving the program. Households that begin a food stamp spell with earnings end their spells more quickly. Households that have earnings when they leave the program are less likely to return.
- Households containing only high school dropouts are substantially more likely to begin to receive food stamps than equally poor households containing high school graduates. Their mean duration is longer, and their recidivism rate is higher.
- One-adult households with children show the most persistent dependency patterns. This group has the longest spells and the highest recidivism rate.

The aged and disabled comprise a special group. Among the subgroups examined, the trigger analysis is least informative about why these people enter and leave the program than any other. Once they begin receiving food stamps, they have relatively long spells. When their spells end, however, they are least likely to resume participation.

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APPENDIX A

THE DATA

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The 1984 panel of the Survey of Income and Program Participation (SIPP) is a nationally representative survey of about 20,000 households, each of which was interviewed once every four months starting in October 1983. The sample is divided into four rotation groups which were interviewed on a staggered basis, with the last interviews occurring in July, 1986.

The SIPP questionnaire consists of three parts. The control card, which is prepared for an address, contains information on household composition and demographics. The core questions, which are replicated in each of the interviewing waves, address issues of labor force status, income, and participation in government programs. Topical modules, which were added to all waves except the first two, cover such special topics as health and disability, child care arrangements, and fertility, on a one-time or intermittent basis.

The analyses in this report are based on a longitudinal file which was extracted from the core of the SIPP data base. Several topical modules were also examined. In the sections that follow, these two types of data are described, followed by a discussion of two aspects of the data that have particular implications for the analyses: response error and the need for sample weights. The concluding section presents some summary statistics on Food Stamp Program participation as reported in these data.

The Longitudinal File

In 1988, the Bureau of the Census completed construction of the 1984 SIPP Full Panel Research File, a rearrangement of the SIPP data into longitudinal form. Some key features of the file are as follows:

- Information from the ninth interview, which was administered to only two of the rotation groups, is not used, so that the time period covered for all individuals is 32 months.

- Imputations of missing data were performed using across-wave information on the same individual. In the original files, in contrast, imputations were carried out within each wave by matching individuals with similar characteristics.
- Similarly, longitudinal weights were developed to replace the cross-section weights from the original files.
- Finally, the variables brought into the file were restricted to a small fraction of the available data. Details from the core questionnaire, as well as all information from the topical modules, were excluded.

In 1989, Mathematica Policy Research created an extract of this file for the purposes of another project, in which the number of variables was further reduced.¹ All one-month gaps in reported receipt of food stamps and cash assistance were filled in, using the average value of the benefits received in the preceding and subsequent months. This extract from the Full Panel Research File is the data source for this report.

Topical Modules

As noted above, the longitudinal file contains no information from the topical modules. Several of these are potentially relevant to analysis of food stamp receipt.

The module of greatest interest pertains to welfare history. Information was collected during Wave 5 from all individuals aged 18 or over on the following items:

- if currently receiving food stamps, the length of the current spell of receipt and whether there were previous spells of receipt;
- if not currently receiving food stamps, whether they had ever in their life applied, and if so, whether they had ever been authorized; and
- if ever authorized, when the first spell began, how long the first spell lasted, and the total number of spells of receipt.

¹See Hoke and Doyle (1990).

The topical modules in Wave 3 are also of interest because they contain several potentially useful covariates. The health and disability module includes self-reported health status. The education and work history module provides two types of life history data:

- sources of job search training and vocational training; and
- spells of unemployment: timing and reasons.

Other topical modules provide information on households' resources. Information on home and vehicle ownership, including current values and amounts of outstanding mortgages and loans, are available from the housing costs module in Wave 4. Information on households' liquid assets can be found in the assets and liabilities module.¹

Data are collected on the presence and value of not only interest-earning assets, as in the core module, but also of stocks and mutual fund shares, rental income, mortgages, royalties, and other investments. Financial information is also collected on U.S. savings bonds, checking accounts, outstanding debts to individuals, credit card bills, and life insurance. The value of this information is limited, however, by its static nature. While the presence of assets may be an important predictor of whether a household applies for food stamps after suffering a loss of income, knowledge of a household's assets in the 16th month of the observation period is of dubious value in predicting earlier food stamp openings.

The findings reported in this paper do not use any information from the topical modules. As discussed in more detail in Appendix D, the welfare history module data proved to be inappropriate for linking with the core data in principle, and too unreliable to warrant separate analysis in practice. Data from the other topical modules were also eventually excluded because of their limited availability and coverage.

¹The core instrument, which focuses primarily on income, collects information only on the amount of interest earned on various assets for the four-month period as a whole. Respondents are not directly questioned on asset value or on the presence of assets that do not earn interest (such as checking accounts).

Response Error

Like all surveys, the SIPP is vulnerable to response errors of various kinds. In several papers, Kent Marquis and Jeffrey Moore analyzed the match between responses on program participation in the first two interviews of the 1984 panel of SIPP, and administrative data on benefit receipt for the same individuals in three States--Florida, Pennsylvania, and Wisconsin.¹ Their key finding is that while the mean number of individuals reporting food stamp receipt is about the same in the two data bases (it was 7 percent smaller in the SIPP), this is a function of numerous counterbalancing errors in the SIPP rather than accurate reporting. Forty-two percent of the residual variance in a regression of reported program participation on the presumably accurate administrative measure was attributable to response error. The situation was considerably worse for changes in food stamp participation--that is, exits from and entries to the program. Here the response bias was -12 percent, i.e. the total number of changes reported was 12 percent less than the actual. Within a wave, however, occurrence of change was underreported by 30 percent on average; while across waves, it was overreported by 115 percent.² Furthermore, the individuals that reported the changes were not necessarily those that experienced them; both within and across waves, the proportion of the total variance in this measure that was due to response error was 86 percent.

It appears then that while the SIPP can be relied upon to produce a good estimate of the total number of people receiving food stamps at a point in time, and a moderately good estimate of the number of individuals beginning and ending receipt of food stamps, its accuracy on the microlevel is suspect. In particular,

- If the errors in misreporting exits are correlated with length of receipt, the estimated distribution of mean spell lengths will be incorrect.

¹See, for example, Marquis and Moore (1989, 1990).

²Although one might have expected to find equal numbers of changes in the administrative data in all months, it happened that there were somewhat fewer changes in the first month of the second wave.

- Because of the measurement error in length of completed spell, associations with putative explanatory variables will be attenuated. Differences between subgroups may be blurred, and regression coefficients in multivariate models may be biased downward.

In an illustrative example, Marquis and Moore found that regression coefficients in a model of receipt of food stamps in Pennsylvania would be biased toward zero by 23 percent. The bias would presumably be substantially worse for a model of food stamp exits. On the other hand, they report that a quarter of the discrepancies in food stamp receipt are attributable to respondent confusion about which household member is the food stamp case head. This type of error would not affect analyses of food stamp coverage such as this one.

Two actions were taken to attempt to reduce the sensitivity of the findings in this report to response error. First, as noted earlier, reported gaps in food stamp receipt of a single month's duration have been removed from the data, on the assumption that most of these were spurious. Second, for the analyses that pertain to circumstances surrounding food stamp openings and closings, receipt is defined with respect to a four-month interview period rather than a single month. Because of the particular interest in length of completed spells, the duration analysis uses monthly data; but the apparent gain in precision may be spurious in part.

Sample Weights

Descriptive analyses of the SIPP data require the use of weights. Although there was no deliberate over- or undersampling when the sample was initially drawn, some discrepancies arose by chance, while others arose due to the differential response rates of this sample.

The Census developed a set of longitudinal weights for individuals for whom there are 32 months of data, i.e., the non-attriters. These weights are designed to render that subset of individuals nationally representative. The deletion of attriters reduces sample sizes by about 40 percent.

The Census also developed a set of cross-section weights which when applied to the "100-level individuals"--sample members who were present for the Wave 1 interview--achieve national representativeness as well. Our analysis includes only 100-level individuals, because

the great majority of people who entered the sample later through marriage, etc., had a chance to be drawn initially and were not selected.¹

The cross-section weights are not appropriate for the current analysis, because they do not adjust for differential probabilities of attrition over the lifetime of the survey. While it is possible in principle to model sample attrition explicitly, and thus include the full sample in the analysis, it was determined that this procedure would be beyond the scope of this project. The current report therefore applies the longitudinal weights developed by the Bureau of the Census to the 32-month sample.

Summary Statistics on Food Stamp Program Participation

The 1984 SIPP panel covers the period June 1983 through June 1986. Although the exact time span covered for each individual varies by rotation group, all individuals have complete data for calendar years 1984 and 1985. For the first rotation group, for example, January 1984 corresponds to the eighth reference month and December 1985 corresponds to the thirty-first reference month.

A total of 3,330 individuals in the longitudinal file received food stamps at some time during calendar year 1984, while a total of 3,044 individuals received benefits some time during calendar year 1985. Exhibit A.1 shows mean months of receipt and turnover for these two years, for the recipient population as a whole and for subgroups. The subgroups for receipt in each year are defined as of December of the preceding year.

Months of receipt for any individual over the course of a year vary from 1 to 12. The turnover rate is defined as the number of individuals who ever received benefits (the

¹The exceptions are people who were not part of the universe in November 1983--i.e., people who had not been born yet, who were in jail and later released, who were in the military, etc.

Exhibit A.1

SUMMARY OF FOOD STAMP PROGRAM PARTICIPATION IN 1984 AND 1985

Individuals by Characteristics in Preceding December	1984		1985	
	Mean Months of Receipt	Turnover Rate	Mean Months of Receipt	Turnover Rate
Earners	7.0	1.7	7.1	1.7
Non-earners	9.9	1.2	10.1	1.2
High school graduates	7.7	1.6	7.8	1.5
High school dropouts	9.3	1.3	9.6	1.2
Able-bodied, childless	6.9	1.7	7.7	1.6
Elderly/disabled, childless	9.3	1.3	9.6	1.2
One adult living with children	9.9	1.2	10.1	1.2
Multiple adults living with children	7.6	1.6	7.4	1.6
Children living with one adult	9.9	1.2	10.3	1.2
Children living with multiple adults	8.0	1.5	8.2	1.5
ALL RECIPIENTS	8.5	1.4	8.7	1.4

Source: 1984 SIPP Panel (June 1983 to June 1986).

Notes: (1) The calculations for each year are based on all individuals who received food stamps in one or more months of that calendar year.

(2) For definitions of population subgroups, see Exhibit II.1.

unduplicated count) divided by the average number receiving benefits in a month. It follows that the turnover rate is 12 divided by mean months of receipt.¹

The patterns for 1984 and 1985 are quite similar, although mean months of receipt are slightly higher in 1985 than in 1984 for most subgroups. For the recipient population as a whole, those who received food stamps did so on average for 8.5 and 8.7 months in 1984 and 1985, respectively. The turnover rate for both years was 1.4. Higher than average turnover rates were seen for individuals who, in the preceding December, lived in households that:

- contained an earner;
- contained a high school graduate;
- consisted entirely of able-bodied adults; and
- if children were present, contained multiple adults.

Conversely, lower than average turnover rates were seen for individuals who lived in households that contained no earners, contained only high school dropouts among the able-bodied adults, consisted entirely of elderly and disabled adults, or consisted of one adult with children.

¹This relationship can be seen as follows:

Let	R	=	Mean months of receipt,
	M	=	Total person months of benefits,
	P	=	Number of persons receiving benefits during the year,
and	C	=	Average monthly caseload.

Then by definition,

	R	=	M/P,
and	C	=	M/12.

It follows that the turnover rate, (P/C), equals 12/R.

APPENDIX B

DETAILS OF SPECIFICATION OF TRIGGER EVENTS

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It is desirable to define trigger events associated with food stamp openings sufficiently broadly to capture most of the instances in the data in which the event could have contributed to a movement on or off the Food Stamp Program. Yet if they are defined too broadly, instances of mere coincidence will be deemed to have been explained. For example, a person who experienced a small drop of income may have begun to receive food stamps. We should not necessarily attribute the opening to the income drop. If we do so incorrectly, we run the risk of falsely predicting openings among other individuals who experience this event.

Exhibit B.1 shows the relationship between decreases in household income of various sizes and the probability that an individual begins to receive food stamps. Clearly, some households are so close to the margin that even a small drop in income may make them eligible for food stamps and possibly lead to their applying for benefits; while others, although below the income cutoff of three times the poverty level, would apply for food stamps only in response to a very large fall in income. It is notable that even for the largest value shown--a drop in household income of at least \$2000 between one wave and the next--the probability of beginning a food stamp spell is still less than 4 percent.

It is more instructive, perhaps, to compare the second and fourth columns of the table. For an income decline of at least \$100, for example, we see that individuals in households that did experience this event were more than twice as likely to begin a food stamp spell than households which did not experience this event (2.5 versus 1.1 percent). Furthermore, if we focus on those individuals who did begin to receive food stamps, 79 percent of them had experienced this trigger event.

As can be seen from scanning the columns of Exhibit B.1, it is an arbitrary procedure to select a cutoff which defines a "significant" loss of income. If a very low cutoff is chosen, a high percentage of openings appear to be accounted for. Yet it does not seem plausible that a drop in income of as little as \$50 or \$100 between one four-month period and the next would be the main reason for a food stamp opening. Conversely, for a very high cutoff, the

Exhibit B.1

**RELATIONSHIP BETWEEN DECREASE IN HOUSEHOLD INCOME
AND PROBABILITY OF ENTERING FOOD STAMP PROGRAM
BETWEEN TWO CONSECUTIVE FOUR-MONTH PERIODS**

Total decrease from wave to wave	Individuals with decrease		Individuals without decrease	
	Percent of individuals with decrease	Probability of entering FSP	Percent of new entrants	Probability of entering
At least:				
\$50	65.8%	2.5%	81.8%	1.1%
\$100	63.2	2.5	79.3	1.1
\$200	58.5	2.6	76.1	1.2
\$300	54.4	2.8	74.0	1.2
\$400	50.7	2.8	71.2	1.2
\$500	47.3	2.9	68.3	1.2
\$600	44.2	3.0	66.5	1.2
\$700	41.2	3.1	64.1	1.2
\$800	38.8	3.2	60.9	1.3
\$900	36.6	3.2	57.9	1.3
\$1000	34.5	3.2	55.3	1.4
\$1100	32.8	3.3	52.8	1.4
\$1200	31.0	3.3	50.4	1.5
\$1300	29.4	3.3	47.8	1.5
\$1400	27.8	3.4	46.3	1.5
\$1500	26.5	3.4	44.7	1.5
\$1600	25.2	3.5	43.1	1.5
\$1700	23.9	3.5	41.6	1.6
\$1800	22.7	3.6	40.1	1.6
\$1900	21.6	3.5	37.8	1.6
\$2000	20.6	3.7	37.1	1.6

Source: 1984 SIPP Panel (June 1983 to June 1986).

Note: Includes only individuals with income less than three times the poverty line.

conditional probability of opening is correspondingly high, but at the cost of excluding many food stamp openings which probably really were triggered by smaller income losses. The cutoff that was selected for the analysis is a \$400 decrease between waves, corresponding to about \$100 per month, as representing a substantive drop in household income that could plausibly trigger a food stamp opening. This event was experienced by 51 percent of non-recipients with household income less than three times the poverty threshold, and by 71 percent of those who began to receive food stamps.

The relationship between size of increase in household income and probability of exit for the food stamp population as a whole is shown in Exhibit B.2. We define the reference wave as the four month period in which a closure could potentially have occurred (because food stamps were received in the preceding wave). The second column of the table shows the percent of recipients who experienced an increase in household income of a particular size either between the reference wave and the preceding wave, or between the preceding wave and the one before that. Thus, we see that about 65 percent of all recipients experienced an increase of at least \$100 in one or both of the two comparisons. This group had an 19 percent probability of exit (compared with 15 percent for the recipient population as a whole). Furthermore, this 65 percent of the recipient population accounted for 84 percent of the food stamp exits. As shown in the last column, the remainder of the population had only a 7 percent probability of exit.

Looking down the rows of the table, two expected tendencies can be seen. First, the larger the increase in income that is considered, the fewer the recipients that experience it. (Note that the rows refer to a total increase of at least a given amount, so that all recipients whose household income increased by \$100 also experienced an increase of \$50.) Second, the association of an increase in income with an exit is greater for larger increases. For example, 31 percent of recipients whose household income increased by \$1000 or more over a four month period exited the food stamp program--more than double the rate for the general recipient population.¹

¹The final column of the exhibit is also expected to show an increasing tendency with the size of the cutoff. For example, the small group that did not experience even a \$50 increase should have a smaller probability of exit than the larger group (which contains it) of individuals that did not experience a \$1000 increase. The relationship is not, however, monotonic.

Exhibit B.2

RELATIONSHIP BETWEEN INCREASE IN HOUSEHOLD INCOME
AND PROBABILITY OF EXITING FOOD STAMP PROGRAM
BETWEEN TWO CONSECUTIVE FOUR-MONTH PERIODS

Total increase from wave to wave	Recipients with increase		Recipients without increase	
	Percent of recipients with increase	Probability of exiting FSP	Percent of exits	Probability of exiting FSP
At least:				
\$50	71.6%	17.9%	86.0%	7.4%
\$100	65.1	19.3	84.3	6.8
\$200	56.8	21.2	80.8	6.7
\$300	51.2	22.5	77.3	6.9
\$400	46.9	23.7	74.6	7.2
\$500	41.4	26.2	72.8	7.0
\$600	37.8	27.5	70.0	7.3
\$700	35.2	28.5	67.3	7.5
\$800	32.7	29.4	64.5	7.9
\$900	30.5	30.5	62.4	8.1
\$1000	29.0	30.9	60.1	8.4
\$1100	26.7	32.5	58.2	8.5
\$1200	24.9	33.1	55.3	8.9
\$1300	22.9	34.6	53.2	9.1
\$1400	21.0	36.5	51.4	9.2
\$1500	19.9	37.7	50.4	9.3
\$1600	18.5	39.3	48.8	9.4
\$1700	17.3	39.8	46.2	9.7
\$1800	16.1	40.7	44.0	10.0
\$1900	15.1	40.7	41.2	10.3
\$2000	14.2	41.0	39.1	10.6

Source: 1984 SIPP Panel (June 1983 to June 1986).

Again, there are no obvious breaks in the table. We have chosen a cutoff of \$400 here as well, as representing a substantive increase in household income that could plausibly trigger an exit from the Food Stamp Program. This event was experienced by a little less than half of

all recipients, and by three-quarters of those who exited.

APPENDIX C

METHODOLOGICAL ISSUES IN ESTIMATING THE DISTRIBUTION AND MEAN OF COMPLETED SPELL LENGTHS

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METHODOLOGICAL ISSUES IN ESTIMATING THE DISTRIBUTION AND MEAN OF COMPLETED SPELL LENGTHS

Several key decisions were made in analyzing duration of food stamp receipt, pertaining to the calculation of the distribution of spell lengths in the presence of right-censored data, choice of spells to include in the analysis, and estimation of the mean length of spell. Each of these is discussed below.

The Distribution Function

Like most reciprocity data, the SIPP data suffer from both left- and right-censoring. That is, some spells of reciprocity are ongoing at the beginning of the observation period, and other spells are ongoing at the end. The end points of these censored spells thus cannot be observed.

The standard approach to dealing with right-censored data is hazard rate analysis, also known as survival analysis. This approach focuses on the probability of a spell of receipt continuing (or ending), conditional on it having lasted a given number of months. Suppose, for example, that of 100 spells that lasted for at least five months, 10 were observed to close in the following month, 75 were observed to remain open in the following month, and 15 could not be observed at all in the following month. Then the hazard rate for month 5 is said to be 10/85. The more familiar unconditional probability density function $f(t)$ is constructed recursively from the hazard rate function $h(t)$ as follows:

$$\begin{aligned}f(1) &= 1 * h(1) \\f(2) &= (1 - f(1)) * h(2) \\f(3) &= (1 - f(1) - f(2)) * h(3), \text{ etc.}\end{aligned}$$

The first factor in each equation is the proportion of cases at risk or at hazard of closing (by virtue of not having closed yet). This term is called the survivor function. The second factor is the proportion of cases at hazard of closing that do close. When the probability density function has been constructed, the median spell length can readily be identified.

Comparison of Survivor Functions

To compare two survivor functions to see if they are statistically significantly different, we use the log-rank test (see Kalbfleish and Prentice, pp. 16-19). The null hypothesis is that the actual number of spell endings for a subgroup is equal to the expected number. The test is performed as follows.

For each number of months t , let $S_1(t)$ and $S_2(t)$ be the number of spells that last at least that long in Subgroups 1 and 2. Furthermore, let $S(t)$ be the sum of $S_1(t)$ and $S_2(t)$. Then we would expect under the null hypothesis that a fraction $S_1(t)/S(t)$ of closures of spells after t months would be from Subgroup 1. If $C(t)$ is the number of closures observed for spells of length t , the total number of closures that we would expect from Subgroup 1 is the sum over t of $[C(t) * S_1(t)/S(t)]$. The difference between this number and the actual number of closures occurring in Subgroup 1 is the numerator of the test statistic.

The denominator of the test statistic is the square root of the variance of this value. The variance is calculated as the sum over t of:

$$S_1(t) * S_2(t) * C(t) * (S(t) - C(t)) / (S(t)^2 * (S(t) - 1)).$$

As weighted data are used, the weights have been normalized in each instance to sum to the number of spells comprising the test.

The Analysis Sample

A controversial methodological question is which spells should be included in the analysis. The usual answer given is that the first spell that begins within the observation period for each individual (or household) should be included, and that subsequent spells should not be. After much consideration, we have concluded that the analysis should be based on all non-left-censored spells.

The goal is to obtain the distribution of length of spells beginning at a given point in time. In particular, the practical question to be answered is: of the next 100 persons who walk

into a food stamp office, how many will have spells that last only one month, two months, three months, and so on?

In principle, a valid estimate of the national distribution of completed spell lengths can be obtained based on those spells in the data base that began in, for example, January 1984. An equally valid estimate can be obtained based on those spells that began in July 1984. The only problem with both of these estimates is that they are based on very small samples. If we pool them, however, we should still have in principle the right number (in an expected value sense) of one-month spells, two-month spells, and so on. In fact, we can similarly pool the openings observed in all the months to get the maximum sample size.

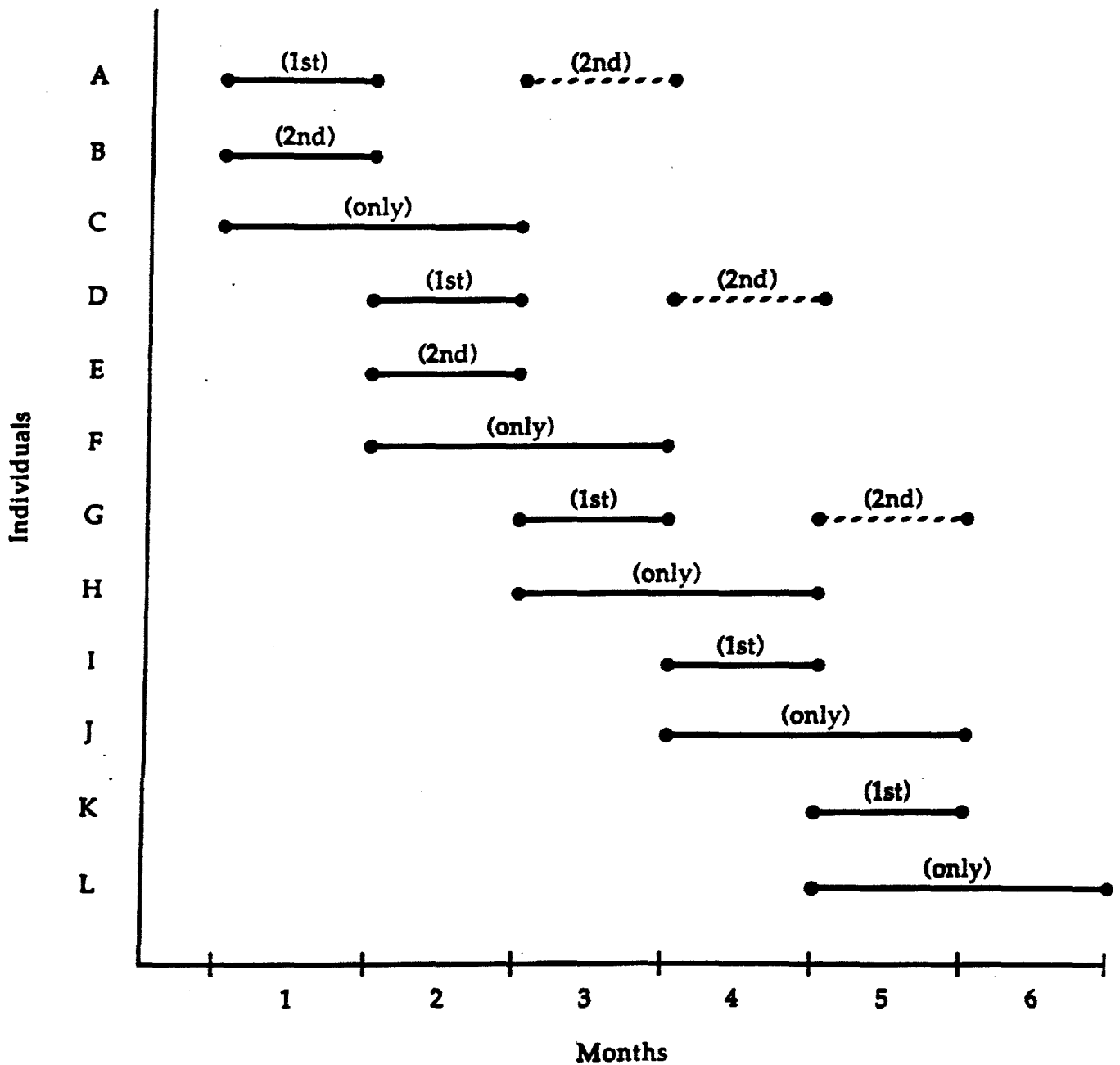
Some percentage of the spells that we see beginning in July 1984 are reopenings of cases that opened in January 1984 and closed in the interim. These spells may have a different distribution than the rest of the sample. If we delete them--as is implied by taking only one spell per individual during the observation period--then the July subsample will no longer be representative of the set of spells that open in an arbitrary month. Combining it with the January subsample, we will have an analysis sample with the wrong proportions of spell lengths.

As an example, suppose that it is known that there are two types of recipients: those who have one long spell, and those that have two short spells. Suppose further that each month, twice as many short spells as long spells begin. If we choose a month at random and analyze the spells that begin, we will correctly conclude that one-third of the next 100 people who enter the food stamp office will have long spells. But if we apply the rule of including only one spell per person in the analysis, then in the later months of the observation period we would be considering only equal numbers of short spells as long spells (because eventually half of the short spells would be second go-rounds for people whose first spells were already included). Hence we would underestimate the number of short spells. This situation is illustrated in Exhibit C.1, where the spells shown in dashed lines would be excluded if only one spell per person were counted.

The usual approach of including only one spell per person provides a representative sample of persons with spells rather than of the spells themselves. While apparently persuasive

Exhibit C.1

EFFECTS ON ESTIMATED DISTRIBUTION OF COMPLETED SPELL LENGTHS OF EXCLUDING KNOWN RECIDIVISTS



arguments can be given in favor of doing so, we now believe those arguments are specious.¹ We have therefore included all non-left-censored spells in the analysis. We note, however, that the spell length distributions using the two approaches are extremely similar; and that the average spell length tends to be slightly longer when multiple spells are included. This suggests that it is people with longer spells that tend to return to the program a little more quickly.

The usual approach for dealing with left-censored spells is to delete them from the analysis, on the grounds that even their start date is unknown. In the SIPP data, however, the start dates of many left-censored spells are known, based on information collected in the Welfare History Topical Module. This suggests the possibility of linking the two sources. We have rejected this approach for a variety of reasons.

To begin with, the set of all spells that begin during the observation period is properly representative of the approved applicant population. Incorporating the left-censored spells brings in a set of spells that is not similarly representative of that population. This set is defined by the feature that they were all ongoing during the first month of observation. The combined sets thus represent a snapshot of the caseload (new and ongoing cases) at a given point in time, rather than a cohort of new recipients.

It is possible in principle to derive a cohort distribution from a snapshot distribution, if stationarity may be assumed over the entire retrospective period. Nonetheless, several serious problems would remain with using these data. First, the characteristics of an individual at the time of a spell beginning are unknown. Hence these data could at most be used for improving our understanding of the caseload dynamics of food stamp population as a whole--not the dynamics of any particular subgroup. Second, spell lengths are measured rather crudely in the topical module data--in whole years only, for spells longer than a year. Third, they are available only for food stamp applicants, not other household members. Finally, and most importantly, they represent retrospective data recalled over a lifetime, rather than over four months. Hence they are substantially different in character from the core data. For all these reasons, we have

¹The results presented in Burstein and Visser (1989) were based on one spell per individual or household.

not attempted to incorporate the topical module data in our central estimates of lengths of completed spells.

Mean Length of Completed Spells

How to calculate the mean length of spell based on the distribution of spell lengths is another difficult question. Because the full distribution is not observed, it is necessary to find a pattern in the estimated hazard rates and extrapolate that pattern ad infinitum. Hazard rates show a great deal of systematic variation during at least the first year of receipt, because of the occurrence of regularly scheduled recertifications. This suggests that a regular pattern (e.g., a constant or a smoothly declining hazard rate) should not be sought until after the first 12 months. As is shown in Chapter Three, however, only about one-third of all spells last more than a year. Hence the sample sizes on which hazard rates for these later months are estimated are small, and the estimated rates are quite unstable. Although this is especially true for certain subgroups, it is even true for the entire population of individuals. When examining the sizable fluctuations of the estimated hazard rate over the second year of receipt, it is impossible to distinguish between various alternative functional forms. Yet the choice of functional form--in particular, how rapidly, if at all, the hazard rate declines with length of spell--has a vital impact on the estimated mean.

As a first approximation, we could suppose that the hazard rate is simply a constant after 12 months, equal to the number of spells observed to close after more than 12 months divided by the sum of the numbers of spells at risk of closing at 13 months, 14 months, etc. The expected length of a spell that did not close within 12 months is therefore equal to 12 plus the inverse of this estimated rate, and the overall mean can then be calculated as:

$$(p_1 * E_1) + (p_2 * E_2), \text{ where}$$

p_1 = proportion of spells ending within 12 months,

p_2 = proportion of spells lasting more than 12 months
= $(1 - p_1)$,

E_1 = mean length of spell for those spells lasting 12 months or less, and

E_2 = expected length of spell for those spells lasting over 12 months.

This is essentially the approach used in Burstein and Visser (1989) as well as in Ellwood (1986).

This value should be taken as a lower bound estimate, however. A constant hazard rate corresponds to a Markov process, in which the probability of closure in each month is independent of the length of time on food stamps to date. It is probable, however, that the hazard rate for a population declines with length of spell. This could occur for two reasons. First, there is undoubtedly some heterogeneity within the population and within each of the subgroups. If we assume a Markov process for each individual, those people with higher personal monthly probabilities of exit will tend to leave the program sooner. By the time a year has passed, the remaining recipients will be disproportionately those with lower personal probabilities of exit, and hence the average closure rate will be lower.

Second, the process may not be Markovian even for individuals. It is sometimes suggested that the longer a person receives food stamps or other welfare, the harder it is to stop, because of decay of human capital, loss of contacts in the world of work, adjustments in aspirations, and so on. This phenomenon is known as "settling in."

As noted above, it is not possible to estimate several parameters reliably from the handful of observed hazard rates beyond 12 months of receipt. We have therefore taken a totally different approach to estimating mean spell lengths, based on observed closure rates.

There is clearly a strong connection between the closure rates and mean spell lengths. In the absence of censored spells, in fact, one measure is the arithmetic inverse of the other. This can be seen as follows. Suppose that there are N completed spells to be analyzed, whose lengths are s_1, s_2, \dots, s_N . Then the average spell length is the sum of s_i/N ; and the closure rate is the number of closures, N , divided by the number of months at risk for a closure, the sum of s_i .

In the presence of censoring, the identity no longer holds exactly. As discussed above, the estimate of the distribution function is based on all non-left-censored spells. Using this

sample will lead to a biased estimate of the closure rate, however. Suppose for simplicity that all spells are 6 months long, the observation period is 12 months long, and 100 spells start in each month. Then 100 closures will be observed in each of months 7 through 12, for a total of 600 closures; but the number of months at risk for a closure will be $(600 * 6)$ for the 600 completed spells, plus $(100 * 5)$ for the spells that began in month 7, plus $(100 * 4)$ for the spells that began in month 8, and so on, up to $(100 * 1)$ for the spells that began in month 11.¹ The closure rate for these spells will therefore be $600/5100$, or 11.8 percent. Based on a six-month spell length, however, we would have expected a closure rate of 16.7 percent.

Although the problem is caused by the right-censored spells, which can only contribute to the denominator of the closure rate and not to the numerator, the solution is not to throw away these spells in calculating the closure rate. While the simple example above assumed that all spells were the same length, in reality spell lengths vary, and right-censored spells are longer on average than uncensored spells.² Hence deleting them would bias the closure rate upward.

The solution is rather to include the left-censored spells for this part of the analysis. If the distribution of spells does not vary over time, then for every spell that was right-censored in, for example, its fourth month, there will be a left-censored spell that first showed up in the observation period when it was already in its fifth month. From the point of view of the computation, these may be thought of as the front and back halves of the same spell.

In fact, the distribution of spells does vary somewhat over time. In particular, the participation rate fell gradually over the observation period, by about 15 percent from the second wave to the eighth. Overall, participation was 7 percent lower in the second half of the period (months 17 through 32) than in the first half (months 5 through 16). Equivalently, there are

¹The spells that began in month 12, the last month of the observation period, could not be included in a closure rate analysis because it is unknown whether they closed after one month.

²This can be seen as follows. If there is a 12-month observation period and an equal number of spells of each length begin in each month, then $1/12$ of the one-month spells will be right censored (i.e. those beginning in month 12); $2/12$ of the two-month spells; $3/12$ of the three-month spells; and so on. Thus the longer spells are disproportionately found among the right-censored ones.

more closures than openings over the course of the observation period--and 13 percent more left-censored spells than right-censored ones, excluding spells that are censored at both ends. This suggests that the estimated closure rate based on all censored and uncensored spells would be biased upward (because there would be more back ends than front ends of spells). To correct for this, in calculating the closure rate we have divided the weights on the left-censored spells by 1.13.¹ This ensures that there are the same number of closures as spell beginnings. The inverse of this adjusted closure rate is our estimated mean length of spell.

Exhibit C.2 illustrates graphically the use of both left- and right-censored spells in calculating the mean spell length.² Suppose that in every month, six spells of receipt begin, of which three last for one month, and the other three last for two, four, and eight months respectively. The distribution thus exhibits duration dependence, and the true mean spell length is 2.667 months.

Suppose further that the window of observation is only 4 months--that is, the longest complete spell that one can observe is 4 months long--so that all of the longest spells are left-censored, right-censored, or both. The hazard function for the first four months can readily be calculated as 0.5, 0.333, 0.0, 0.5; but one would be hard-pressed to estimate how long on average the remaining 1/6 of spells lasted.

Use of the inverse of the closure rate, however, immediately yields the desired result. It can be seen that 24 closures occur in the observation period out of a total of 64 person-months of receipt. This implies a closure rate of 0.375, the inverse of which is 2.667, the true mean spell length.

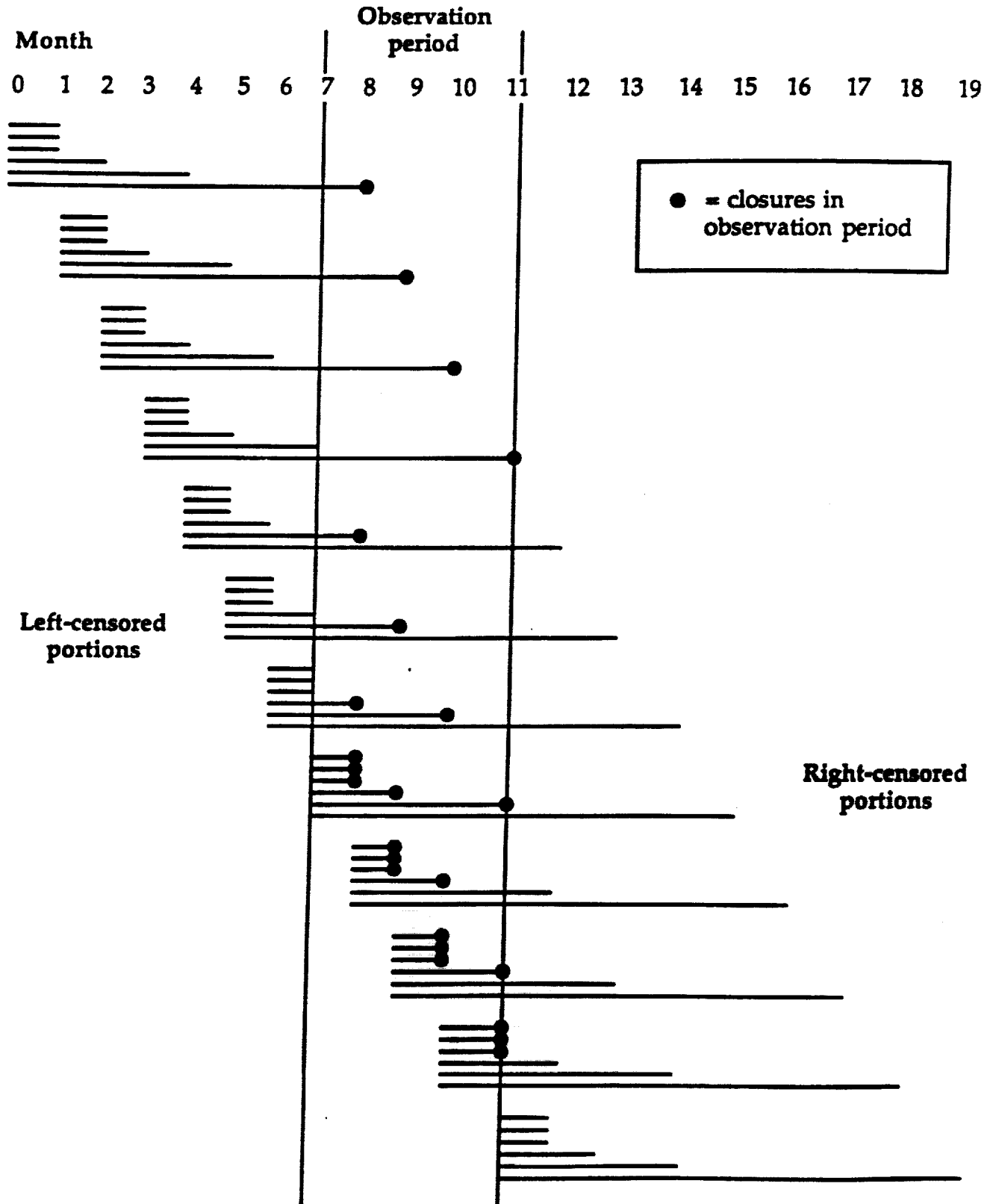
This approach generates an estimate of mean spell length for all individuals, and analogously for all households. Generating means for recipient subgroups requires further manipulation of the data. The mean spell length for earners refers to the average length of receipt for individuals whose households contain earners when the spell of receipt begins. This

¹The corresponding adjustment for the household-level data entailed a deflation of weights on left-censored spells by 1.06.

²The author is indebted to Alberto Martini for this illustration.

Exhibit C.2

USE OF RIGHT- AND LEFT-CENSORED SPELLS TO CALCULATE MEAN SPELL LENGTH



is not necessarily the inverse of the closure rate for individuals who have earnings in a given month. It is important to include left-censored spells in the calculation of closure rates; yet the characteristics of the individuals at the time these spells began are unknown.

Suppose, however, that we estimate the proportion of months with earnings in those spells in which earnings were present in the first month of receipt. (This estimate necessarily relies on non-left-censored spells only.) Call this proportion m_1 . Let c_1 equal the closure rate for months with earnings in all spells, and c_2 equal the closure rate for months without earnings in all spells. Then we can estimate the closure rate for earners as equal to:

$$m_1 * c_1 + (1 - m_1) * c_2,$$

and the mean spell length as the inverse of this value.

For this formula to be defensible, it should be true that c_1 and c_2 are about the same for earners as for non-earners. If they are not, then we would be analyzing closure rates for cases based on current characteristics when in fact current characteristics are of little relevance. Examining non-left-censored spells only (for which we can indeed determine whether the individual was in a household with earnings), we find that these conditions are fairly well met. The closure rate in such spells for individuals in households that have earnings in a given month is 12.4 percent for those who had earnings when the spell began, and 12.9 percent for those who did not. The corresponding numbers for individuals who do not have earnings in a given month are 6.3 percent and 5.1 percent. This lends support to the notion that c_1 and c_2 are stable parameters that we can combine in such a way.

Means are estimated similarly for other sets of subgroups. The closure rates for subgroups defined as of the first month of a spell turn out to be very close indeed to closure rates for subgroups defined on a month-to-month basis, because movements among subgroups are relatively rare.

APPENDIX D

THE WELFARE HISTORY TOPICAL MODULE

APPENDIX D

THE WELFARE HISTORY TOPICAL MODULE

As has previously been discussed, the SIPP contains two types of information on length of receipt of food stamps. Chapter Three analyzed spells that began during the observation period. Using the topical module data, earlier (and longer) spells may in principle be studied as well. In particular, we may determine the length of an applicant's first completed spell, for all sample members who started such a spell before the administration of the fifth topical module.

It is worthwhile to review how the topical module data differ in structure from the core data. The key differences are:

- that the topical module data is available only for the applicant, i.e. the person in whose name the benefits are paid, rather than for all the members of the household who are covered by the benefits;
- that the length of spell is measured only crudely, i.e. in a whole number of years for spells lasting more than 11 months; and
- that the characteristics of the applicant at the time of the spell beginning are unknown.

Furthermore, because the length of time covered is variable, only the first spell ever of each applicant is examined here, rather than all spells within a given calendar period.

Exhibit D.1 replicates the portion of the questionnaire that pertains to history of food stamp receipt. The first spell is identified and measured as follows:

(1) For individuals currently receiving food stamps, i.e. at the time of the administration of the topical module (Q8058="yes"), if this was the only time food stamps were received (Q8066="no"), then the length of the first spell is the value shown in Q8060 or Q8062. These spells are right censored.

(2) For other individuals currently receiving food stamps, as well as for those individuals not currently receiving food stamps (Q8058="no") who previously did so (Q8070="yes"), the length of the first spell is the value shown in Q8076 or Q8078.

Exhibit D.1

(3) All spell lengths of less than one year were grouped together. Right-censored spells of 11 months or less were deleted from the analysis, because it could not be known that they did not close in their first year. (The rationale for including right-censored data in an analysis is that although it is not known whether such spells closed after t months or years, it is known that they survived for at least t-1 months or years. That condition is not met here.)

The results of this analysis, shown in Exhibit D.2, are quite surprising—in fact, unbelievable. According to this table, barely a quarter of first spells are 1 year long or less, and 60 percent lasted over 10 years!¹

Mechanically speaking, these results are largely driven by the fact that 70 percent of individuals responding to this module were reportedly in their first spell of food stamp receipt. Hence closures were observed for only 30 percent of the reported first spells. From a behavioral point of view, it seems likely that individuals would forget early spells that were very short, or run together several shorter spells into one longer one.

We conclude that the 1984 topical module data are not useful for analyzing food stamp dynamics. Later panels of the SIPP have refined the questionnaire in an attempt to get more accurate responses regarding long run patterns of food stamp receipt. Miller and Martini (1991), in an analysis of the 1986 panel of the SIPP, concluded that data gathered retrospectively on spell beginnings in the topical module were essentially comparable to data gathered concurrently in the core instrument. They based this conclusion on the similarity of the distributions of length of time spent on the Food Stamp Program before the survey began and after the survey began, for households that were ongoing recipients at the start of the panel. Thus, future research may fruitfully integrate the two data sources.

¹This table presents weighted results, using the longitudinal sample weights. Although it would probably be more appropriate to use the Wave 5 cross-section weights, these were not available to us. We note, however, that the results obtained from doing the analysis on unweighted data were practically identical to those in the exhibit—e.g. it was still true that barely a quarter of spells were one year long or less, and that 60 percent lasted over 10 years. The main result of using the cross-section weights would probably be to increase the sample sizes somewhat.

Exhibit D.2
LENGTH OF FIRST COMPLETED FOOD STAMP SPELL,
AS REPORTED IN FIFTH TOPICAL MODULE

Years	Sample size	Probability	Cumulative probability
<1	557	19.5%	19.5%
1	454	7.0	26.6
2	371	5.3	31.8
3	283	1.4	33.2
4	214	2.5	35.7
5	162	1.4	37.0
6-10	130	2.8	39.8
11+	45	60.2	100.0

Source: 1984 SIPP Panel (June 1983 - June 1986)

APPENDIX E

DISTRIBUTION OF LENGTH OF COMPLETED SPELLS FOR SUBGROUPS OF INDIVIDUALS

Exhibit E.1

**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS FOR INDIVIDUALS
IN HOUSEHOLDS WITH EARNINGS IN FIRST MONTH OF RECEIPT**

Months	Probability of closure	Cumulative probability of closure
1	15.2 %	15.2 %
2	11.0	26.2
3	6.3	32.5
4	15.3	47.8
5	3.6	51.5
6	5.9	57.3
7	4.8	62.2
8	7.6	69.8
9	0.9	70.6
10	2.9	73.5
11	0.6	74.1
12	2.7	76.8
13	0.5	77.3
14	0.6	77.8
15	0.3	78.2
16	1.7	79.9
17	0.8	80.6
18	0.8	81.5
19	2.5	83.9
20	0.0	83.9
21	0.3	84.2
22	0.0	84.2
23	3.7	87.9
24	0.0	87.9
25+	12.1	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 5 months.
 - (3) Unweighted sample size: 1,556.

Exhibit E.2

**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS FOR INDIVIDUALS
IN HOUSEHOLDS WITH NO EARNINGS IN FIRST MONTH OF RECEIPT**

Months	Probability of closure	Cumulative probability of closure
1	9.0%	9.0%
2	7.5	16.4
3	3.4	19.8
4	11.5	31.3
5	4.7	36.0
6	5.6	41.6
7	0.6	42.2
8	4.6	46.8
9	1.8	48.6
10	2.0	50.5
11	2.0	52.6
12	3.0	55.6
13	1.5	57.0
14	1.0	58.0
15	2.3	60.2
16	4.0	64.3
17	0.8	65.0
18	0.0	65.0
19	2.2	67.2
20	0.7	67.8
21	0.0	67.8
22	0.0	67.8
23	0.9	68.7
24	0.0	68.7
25+	31.3	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

Notes: (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 (2) Median: 10 months.
 (3) Unweighted sample size: 1,067.

Exhibit E.3**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS FOR INDIVIDUALS
IN HOUSEHOLDS CONTAINING HIGH SCHOOL GRADUATES
IN FIRST MONTH OF RECEIPT**

Months	Probability of closure	Cumulative probability of closure
1	13.3%	13.3%
2	11.3	24.6
3	5.4	30.0
4	13.8	43.8
5	3.9	47.7
6	5.8	53.5
7	3.1	56.5
8	6.3	62.8
9	1.4	64.2
10	2.2	66.4
11	1.1	67.5
12	2.3	69.8
13	0.9	70.6
14	0.0	70.6
15	1.3	71.9
16	3.0	74.9
17	0.7	75.6
18	0.6	76.1
19	2.1	78.2
20	0.0	78.2
21	0.2	78.4
22	0.0	78.4
23	3.3	81.7
24	0.0	81.7
25+	18.3	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 6 months.
 - (3) Unweighted sample size: 1,688.

Exhibit E.4**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS FOR INDIVIDUALS
IN HOUSEHOLDS CONTAINING HIGH SCHOOL DROPOUTS ONLY
IN FIRST MONTH OF RECEIPT**

Months	Probability of closure	Cumulative probability of closure
1	12.0%	12.0%
2	6.3	18.3
3	5.1	23.5
4	13.6	37.1
5	4.9	42.0
6	6.1	48.1
7	3.7	51.8
8	7.0	58.7
9	1.2	59.9
10	2.9	62.8
11	0.9	63.7
12	3.4	67.1
13	1.2	68.3
14	2.6	70.9
15	0.9	71.8
16	1.8	73.6
17	0.9	74.5
18	0.5	75.0
19	3.7	78.6
20	0.0	78.6
21	0.0	78.6
22	0.0	78.6
23	0.0	78.6
24	0.0	78.6
25+	21.4	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 7 months.
 - (3) Unweighted sample size: 772.

Exhibit E.5
DISTRIBUTION OF LENGTH OF COMPLETED SPELLS FOR INDIVIDUALS
WHO ARE ABLE-BODIED AND CHILDLESS
IN FIRST MONTH OF RECEIPT

Months	Probability of closure	Cumulative probability of closure
1	14.6%	14.6%
2	12.0	26.6
3	6.1	32.7
4	15.4	48.1
5	3.2	51.3
6	7.8	59.1
7	5.7	64.8
8	7.3	72.1
9	3.0	75.1
10	0.8	75.9
11	0.6	76.5
12	1.7	78.2
13	1.5	79.7
14	0.0	79.7
15	0.0	79.7
16	5.5	85.2
17	1.1	86.2
18	1.2	87.4
19	0.0	87.4
20	0.0	87.4
21	0.0	87.4
22	0.0	87.4
23	0.0	87.4
24	0.0	87.4
25+	12.6	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

Notes: (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
(2) Median: 5 months.
(3) Unweighted sample size: 218.

Exhibit E.6**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS FOR INDIVIDUALS
WHO ARE AGED OR DISABLED IN FIRST MONTH OF RECEIPT**

Months	Probability of closure	Cumulative probability of closure
1	11.8%	11.8%
2	7.9	19.7
3	6.0	25.7
4	16.6	42.2
5	2.2	44.4
6	3.6	48.0
7	1.8	49.8
8	3.1	53.0
9	3.4	56.3
10	1.6	57.9
11	3.0	60.9
12	1.9	62.8
13	1.2	64.0
14	0.0	64.0
15	0.0	64.0
16	1.4	65.4
17	1.4	66.8
18	0.0	66.8
19	0.0	66.8
20	3.6	70.3
21	1.9	72.2
22	0.0	72.2
23	3.6	75.8
24	0.0	75.8
25+	24.2	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 8 months.
 - (3) Unweighted sample size: 205.

Exhibit E.7

**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS FOR ADULTS
LIVING WITH CHILDREN BUT NO OTHER ADULTS
IN FIRST MONTH OF RECEIPT**

Months	Probability of closure	Cumulative probability of closure
1	8.3%	8.3%
2	6.5	14.7
3	5.6	20.3
4	7.1	27.4
5	3.0	30.5
6	8.3	38.8
7	2.2	41.0
8	8.4	49.4
9	0.8	50.3
10	1.7	52.0
11	0.8	52.7
12	2.5	55.3
13	1.2	56.5
14	1.2	57.7
15	4.1	61.7
16	2.5	64.2
17	1.5	65.7
18	0.0	65.7
19	0.0	65.7
20	0.0	65.7
21	0.0	65.7
22	0.0	65.7
23	0.0	65.7
24	0.0	65.7
25+	34.3	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

Notes: (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 (2) Median: 9 months.
 (3) Unweighted sample size: 165.

Exhibit E.8
DISTRIBUTION OF LENGTH OF COMPLETED SPELLS FOR
ADULTS LIVING WITH CHILDREN AND OTHER ADULTS
IN FIRST MONTH OF RECEIPT

Months	Probability of closure	Cumulative probability of closure
1	15.1%	15.1%
2	11.5	26.5
3	5.4	31.9
4	15.3	47.2
5	4.7	51.9
6	4.8	56.7
7	2.5	59.2
8	5.9	65.1
9	0.7	65.8
10	2.7	68.5
11	1.3	69.7
12	3.2	72.9
13	0.8	73.7
14	0.6	74.3
15	0.6	74.9
16	2.6	77.5
17	0.7	78.2
18	0.7	78.9
19	3.7	82.6
20	0.0	82.6
21	0.0	82.6
22	0.0	82.6
23	4.8	87.3
24	0.0	87.3
25+	12.7	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 5 months.
 - (3) Unweighted sample size: 839.

Exhibit E.9
DISTRIBUTION OF LENGTH OF COMPLETED SPELLS FOR CHILDREN
LIVING WITH ONE ADULT IN FIRST MONTH OF RECEIPT

Months	Probability of closure	Cumulative probability of closure
1	5.6%	5.6%
2	5.1	10.7
3	5.8	16.5
4	7.5	24.0
5	2.0	26.0
6	8.6	34.6
7	2.1	36.7
8	7.5	44.2
9	1.1	45.3
10	3.3	48.6
11	1.2	49.7
12	0.9	50.7
13	1.9	52.5
14	1.0	53.5
15	2.8	56.3
16	4.3	60.5
17	0.7	61.3
18	0.0	61.3
19	0.0	61.3
20	0.0	61.3
21	0.0	61.3
22	0.0	61.3
23	0.0	61.3
24	0.0	61.3
25+	38.7	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 12 months.
 - (3) Unweighted sample size: 340.

Exhibit E.10

**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS FOR CHILDREN
LIVING WITH MORE THAN ONE ADULT IN FIRST MONTH OF RECEIPT**

Months	Probability of closure	Cumulative probability of closure
1	13.6%	13.6%
2	9.2	22.7
3	3.1	25.9
4	14.5	40.4
5	5.4	45.8
6	4.9	50.7
7	3.9	54.6
8	6.8	61.4
9	1.0	62.3
10	3.3	65.6
11	1.1	66.6
12	4.3	70.9
13	0.2	71.1
14	0.4	71.6
15	1.2	72.7
16	1.6	74.4
17	0.6	74.9
18	0.7	75.6
19	4.5	80.1
20	0.0	80.1
21	0.0	80.1
22	0.0	80.1
23	4.4	84.5
24	0.0	84.5
25+	15.5	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 6 months.
 - (3) Unweighted sample size: 785.

APPENDIX F

**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS
FOR SUBGROUPS OF HOUSEHOLDS**

Exhibit F.1
DISTRIBUTION OF LENGTH OF COMPLETED SPELLS
FOR HOUSEHOLDS CONTAINING EARNERS
IN FIRST MONTH OF RECEIPT

Months	Probability of closure	Cumulative probability of closure
1	17.2%	17.2%
2	11.5	28.7
3	10.2	38.9
4	11.8	50.7
5	3.6	54.3
6	6.3	60.6
7	4.8	65.4
8	5.7	71.1
9	1.4	72.5
10	2.1	74.6
11	0.7	75.3
12	1.4	76.7
13	0.6	77.3
14	2.1	79.4
15	1.4	80.8
16	1.4	82.2
17	1.1	83.3
18	1.9	85.2
19	1.7	86.9
20	0.8	87.6
21	0.0	87.6
22	0.0	87.6
23	2.6	90.2
24	0.0	90.2
25+	9.8	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 4 months.
 - (3) Unweighted sample size: 481.

Exhibit F.2

**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS
FOR HOUSEHOLDS CONTAINING NO EARNERS
IN FIRST MONTH OF RECEIPT**

Months	Probability of closure	Cumulative probability of closure
1	11.0%	11.0%
2	7.0	18.0
3	3.5	21.5
4	9.0	30.5
5	5.2	35.6
6	7.2	42.9
7	1.5	44.4
8	2.9	47.3
9	1.9	49.2
10	2.1	51.3
11	2.0	53.3
12	3.8	57.1
13	2.0	59.2
14	1.1	60.3
15	2.1	62.3
16	1.6	63.9
17	1.6	65.5
18	0.5	65.9
19	1.7	67.7
20	0.0	67.7
21	0.0	67.7
22	0.0	67.7
23	1.9	69.6
24	0.0	69.6
25+	30.4	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 10 months.
 - (3) Unweighted sample size: 482.

Exhibit F.3
DISTRIBUTION OF LENGTH OF COMPLETED SPELLS
FOR HOUSEHOLDS CONTAINING HIGH SCHOOL GRADUATES
IN FIRST MONTH OF RECEIPT

Months	Probability of closure	Cumulative probability of closure
1	14.2%	14.2%
2	11.7	25.9
3	7.5	33.4
4	10.8	44.2
5	4.4	48.6
6	6.4	55.1
7	4.0	59.0
8	4.5	63.6
9	2.7	66.3
10	1.8	68.1
11	1.4	69.5
12	2.5	72.0
13	1.6	73.5
14	1.7	75.2
15	1.7	76.9
16	2.2	79.0
17	0.9	79.9
18	1.4	81.3
19	1.4	82.7
20	0.5	83.2
21	0.0	83.2
22	0.0	83.2
23	2.3	85.5
24	0.0	85.5
25+	14.5	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 6 months.
 - (3) Unweighted sample size: 544.

Exhibit F.4
DISTRIBUTION OF LENGTH OF COMPLETED SPELLS
FOR HOUSEHOLDS CONTAINING HIGH SCHOOL DROPOUTS ONLY
IN FIRST MONTH OF RECEIPT

Months	Probability of closure	Cumulative probability of closure
1	15.5%	15.5%
2	7.2	22.7
3	7.7	30.3
4	10.9	41.2
5	5.4	46.6
6	6.6	53.2
7	2.3	55.5
8	3.8	59.3
9	0.4	59.7
10	1.9	61.6
11	1.1	62.7
12	2.1	64.8
13	0.8	65.5
14	2.0	67.5
15	1.6	69.1
16	0.7	69.8
17	2.0	71.7
18	1.2	73.0
19	3.3	76.2
20	0.0	76.2
21	0.0	76.2
22	0.0	76.2
23	0.0	76.2
24	0.0	76.2
25+	23.8	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 6 months.
 - (3) Unweighted sample size: 284.

Exhibit F.5**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS
FOR HOUSEHOLDS CONSISTING OF ABLE-BODIED ADULTS ONLY
IN FIRST MONTH OF RECEIPT**

Months	Probability of closure	Cumulative probability of closure
1	15.9%	15.9%
2	11.7	27.6
3	8.4	36.0
4	11.1	47.1
5	3.5	50.6
6	11.2	61.8
7	4.6	66.4
8	2.6	69.0
9	4.2	73.2
10	0.0	73.2
11	1.7	74.8
12	3.3	78.1
13	1.9	80.0
14	0.0	80.0
15	0.0	80.0
16	3.1	83.1
17	1.4	84.5
18	1.6	86.1
19	0.0	86.1
20	0.0	86.1
21	0.0	86.1
22	0.0	86.1
23	0.0	86.1
24	0.0	86.1
25+	13.9	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 5 months.
 - (3) Unweighted sample size: 158.

Exhibit F.6**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS
FOR HOUSEHOLDS CONSISTING OF AGED AND DISABLED INDIVIDUALS
IN FIRST MONTH OF RECEIPT**

Months	Probability of closure	Cumulative probability of closure
1	9.4%	9.4%
2	4.3	13.7
3	4.4	18.1
4	11.3	29.4
5	2.7	32.0
6	7.1	39.2
7	1.4	40.5
8	2.2	42.7
9	2.0	44.7
10	4.8	49.5
11	2.5	52.0
12	2.9	54.9
13	2.0	56.9
14	0.0	56.9
15	1.9	58.7
16	0.0	58.7
17	1.9	60.6
18	0.0	60.6
19	0.0	60.6
20	2.5	63.1
21	0.0	63.1
22	0.0	63.1
23	5.1	68.2
24	0.0	68.2
25+	31.8	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 11 months.
 - (3) Unweighted sample size: 158.

Exhibit F.7

**DISTRIBUTION OF LENGTH OF COMPLETED SPELLS
FOR HOUSEHOLDS CONSISTING OF ONE ADULT AND CHILDREN
IN FIRST MONTH OF RECEIPT**

Months	Probability of closure	Cumulative probability of closure
1	9.4%	9.4%
2	6.8	16.2
3	4.3	20.4
4	6.8	27.2
5	5.3	32.5
6	8.1	40.7
7	2.1	42.8
8	5.8	48.6
9	0.6	49.2
10	1.4	50.6
11	0.6	51.2
12	2.9	54.1
13	1.0	55.1
14	0.0	55.1
15	3.1	58.2
16	1.9	60.1
17	1.2	61.3
18	1.0	62.3
19	1.2	63.5
20	0.0	63.5
21	0.0	63.5
22	0.0	63.5
23	0.0	63.5
24	0.0	63.5
25+	36.5	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 10 months.
 - (3) Unweighted sample size: 212.

Exhibit F.8
DISTRIBUTION OF LENGTH OF COMPLETED SPELLS
FOR HOUSEHOLDS CONSISTING OF MULTIPLE ADULTS AND CHILDREN
IN FIRST MONTH OF RECEIPT

Months	Probability of closure	Cumulative probability of closure
1	17.8%	17.8%
2	11.1	28.9
3	7.4	36.2
4	12.0	48.2
5	5.0	53.2
6	4.3	57.5
7	3.7	61.2
8	4.4	65.7
9	1.1	66.8
10	2.5	69.3
11	1.4	70.6
12	2.2	72.9
13	1.0	73.9
14	3.1	77.1
15	1.6	78.7
16	1.0	79.7
17	1.3	81.0
18	1.6	82.6
19	3.6	86.1
20	0.0	86.1
21	0.0	86.1
22	0.0	86.1
23	4.5	90.6
24	0.0	90.6
25+	9.4	100.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

- Notes:**
- (1) Estimates are based on survival analysis of all non-left-censored spells beginning in or after the fifth month of the observation period.
 - (2) Median: 5 months.
 - (3) Unweighted sample size: 414.

APPENDIX G

SOURCES OF DIFFERENCES BETWEEN INDIVIDUAL-LEVEL AND HOUSEHOLD-LEVEL DISTRIBUTIONS

APPENDIX G

SOURCES OF DIFFERENCES BETWEEN INDIVIDUAL-LEVEL AND HOUSEHOLD-LEVEL DISTRIBUTIONS

It was shown in Chapter Three that the distributions of lengths of completed food stamp spells were very similar, both for the recipient population as a whole, and for the individual subgroups. It could be, however, that these differences represent the net effects of several forces operating in opposite directions. For some subgroups, the relative importance of these forces may vary. Consider an individual i , living in household h , who is receiving food stamps in a given month. In the following month, there are three possible outcomes for this person:

- continued receipt of food stamps;
- non-receipt; or
- death, institutionalization, or emigration.

(Note that attrition from the sample is not a possibility here because the longitudinal sample excludes attriters.)

Similarly, the possibilities for household h in the following month are:

- continued receipt of food stamps;
- non-receipt; or
- dissolution, due to death or departure of reference person or spouse, acquisition of a new spouse, etc.

There are thus nine possibilities for individual i and household h combined. As shown in Exhibit G.1, most of these would lead to no difference between spell length as measured for the individual or for the household.

Two combinations of events will lead household-level spells to be longer than individual-level spells. These are cases in which the household continues to exist and receive food stamps, while the individual either stops receiving food stamps (e.g., a non-key person such

Exhibit G.1

**IMPLICATIONS OF CHANGE IN FOOD STAMP RECEIPT STATUS OF
INDIVIDUALS AND LONGITUDINAL HOUSEHOLDS ON
RELATIVE SPELL LENGTHS**

Household

**Continued
receipt**

**Non-
receipt**

Dissolution

as a grown child who leaves the household), or else dies or is institutionalized (typically a non-key elderly or disabled person).

Conversely, two combinations lead to individual-level spells longer than household-level spells. These are cases in which the individual continues to receive food stamps, but the household either does not do so (suggesting that the individual in question is a non-key person who has split off), or has ceased to exist. In an example that was seen in the SIPP data, a woman in her 70s who lived alone for most of the observation period was joined by a young child for six months. The woman received food stamps continuously for 24 months; but her household type changed from nonfamily to family and back again, leading to three household-level spells of lengths 8, 6, and 10 months, respectively.

Whether use of household-level data causes an upward or a downward bias depends on the relative frequencies of these types of events. It is usually assumed, however, that household reorganization, leading to a downward bias in the length of household spells, is the most significant factor.¹

In addition, there is a compositional factor that could lead to a divergence in distributions, even without any split-offs or deaths. Suppose that the food stamp population consists of large households and small households, and that members of large households have longer spells. The members of large households necessarily comprise a greater proportion of individuals than the large households comprise of households. Hence the average spell length for individuals, which is a weighted average of the spell length for individuals residing in large and small households, would be longer than the spell length for households.

¹An additional potential source of differences can be ignored in the current context. When a baby is born into a household that is already receiving food stamps (or a non-recipient moves in, such as the young child in the example above), in the absence of other compositional changes the new entrant will have a shorter spell than the rest of the household. Hence the average of the individual-level spells will be shorter than the household spell. This consideration is irrelevant here, however, because the analysis is restricted to persons who were present in the sampled households when the sample was drawn, i.e., in November 1983. Newborn babies are therefore excluded, and the great majority of individuals who move in with included persons are from outside the original sample.

Because our interest is now focused on month-to-month changes, the contributions of each of these factors to differences in observed patterns of participation between individuals and households may be seen by analyzing impacts on the closure rate. The closure rate is measured based on all months of food stamp receipt in the observation period except the first four and the last. The first four months are excluded because household composition data were not collected consistently in the first wave; the last month is excluded because it is unknown whether or not the individual received food stamps in the subsequent month. This is in contrast with the analysis sample used to analyze distribution of spell length, which included months in non-left-censored spells only. Furthermore, the subgroups for this part of the analysis are defined as of the current month of receipt, rather than in the month the spell began.

Exhibit G.2 brings together a variety of measures of the closure rate, with information on the sources of differences. The first two columns of the table show the closure rates for individuals and households as a function of their characteristics in a given month of receipt.¹ The third column shows household-level closure rates measured for individuals. This is equivalent to measuring closure rates for households weighted by household size. This reweighting does not change the estimated closure rates by very much. For the recipient population as a whole, we see that the weighted household closure rate is a little higher than the unweighted rate, indicating that larger households tend to have higher closure rates. The difference in the two household-level closure rates is 0.3 percentage points. The difference does not go in the same direction for all subgroups, however. Comparison of the second and third columns indicates, for example, that closure rates tend to be higher for childless households if they are larger, and higher for households with children if they are smaller. This is a plausible pattern. For one-adult households with children, smaller households have fewer children and are thus more likely to close. Most of the variation in household size for multiple adult households with children is also in the number of children, so that the same reasoning applies.

¹Thus, for example, a food stamp recipient in a household without earnings this month has only a 2.2 percent probability of closure next month. This is much lower than the monthly probability of closure for individuals who began their spells of receipt without earnings, because earnings may be achieved along the way.

Exhibit G.2

**SOURCE OF DIFFERENCES BETWEEN INDIVIDUAL AND
HOUSEHOLD LEVEL SPELL LENGTHS**

	Sources of Difference						
	Closure Rate			Individual Spell Longer		Household Spell Longer	
	Individual Level	Household Level	Weighted by Household Size	Departure	Household Dissolves	Departure	Individual dies, etc.
Earners	8.1%	8.8%	8.4%	0.2%	1.0%	0.8%	0.0%
Nonearners	2.2	2.7	2.6	0.0	0.7	0.4	0.0
High school graduates	5.9	6.2	6.2	0.2	0.8	0.7	0.0
High school dropouts	3.5	4.1	4.0	0.1	1.0	0.5	0.0
Able-bodied, childless	7.6	7.5	8.3	0.1	1.6	1.0	0.0
Aged and disabled	3.2	3.0	3.4	0.0	0.5	0.3	0.0
Single adult and children	2.4	3.2	2.8	0.0	0.6	0.2	0.0
Multiple adults and children	6.0	6.5	6.3	0.2	1.0	0.8	0.0
ALL RECIPIENTS	4.5	4.6	4.9	0.1	0.8	0.6	0.0

Source: 1984 SIPP Panel (June 1983 to June 1986).

For childless households, on the other hand, larger households are more likely to experience a closure for two reasons: they have more adults who are actual and potential earners, and they are more vulnerable to household dissolution.

For each month in which an individual received food stamps, we can determine whether that individual--and the household of which that individual was a part--continued to exist in the sample and to receive food stamps in the following month. The final four columns of the exhibit show the relative frequencies of events that cause differences between individual- and household-level closure rates. These events are necessarily measured on the individual level. The two events that correspond to longer individual-length spells are that while the individual continues to receive food stamps from one month to the next, the household either ceases to do so (implying that the individual must have left the household), or, more commonly, ceases to exist. The two events that correspond to longer household-length spells are that while the household continues to exist and to receive food stamps, the individual either ceases to receive food stamps (again, necessarily leaving the household), or else dies, is institutionalized, etc.

For the recipient population as a whole, in any give month 0.1 percent of individuals continue to receive food stamps while their (former) households cease to do so, and 0.8 percent continue to receive food stamps while their households cease to exist. On the other hand, 0.6 percent of individuals leave the food stamp program while members of their households continue to participate, and a negligible proportion of recipients die, are institutionalized, etc. while their households still receive benefits. The net effect (correcting for rounding) is that the closure rate for individuals is 0.4 percentage points lower than the closure rate for households, weighted by household size.

The patterns vary somewhat among the subgroups, although none of the net effects are very large. Among able-bodied, childless recipients, for example, 1.6 percent continue to receive food stamps when their households dissolve, and another 0.1 percent exit from their households and continue to receive food stamps while their households cease to do so. These efforts are countered, however, by the 1.0 percent of recipients in this subgroup who cease receiving food stamps while departing from households that continue to do so. The net effect

of these movements is therefore only 0.7 percentage points. Net effects for the other subgroups are smaller.

These impacts on closure rates correspond to impacts on the hazard rate, rather than on the probabilities of closure shown in Exhibits III.2 and III.5. To get an approximate idea of their policy implications, we may use the relationship discussed in Appendix C that in a steady state, the average length of receipt is equal to the reciprocal of the closure rate. For the recipient population as a whole, therefore, a difference between closure rates of 4.5 and 4.9 percent would correspond to a difference in mean spell lengths of 22.2 versus 20.4 months--that is, a two month difference.¹

The main implications of this exhibit are that:

- estimated closure rates and mean durations for the food stamp population as a whole and for various subgroups are nearly the same, whether measured on the individual level or the household level
- estimates based on household-level data would be only slightly different if the households were weighted by size
- the events that are associated with individuals continuing to receive food stamps while the households to which they belong no longer do so or cease to exist, as well as the events associated with individuals ceasing to receive food stamps while their former households continue to do so, are quite rare and largely counterbalancing.

¹As discussed in Appendix C, however, the Food Stamp Program was not in a steady state during the observation period. In fact, participation was growing. The estimated mean spell lengths presented in the text for individuals and (unweighted) households, which are adjusted for this, are therefore slightly smaller than these values.

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